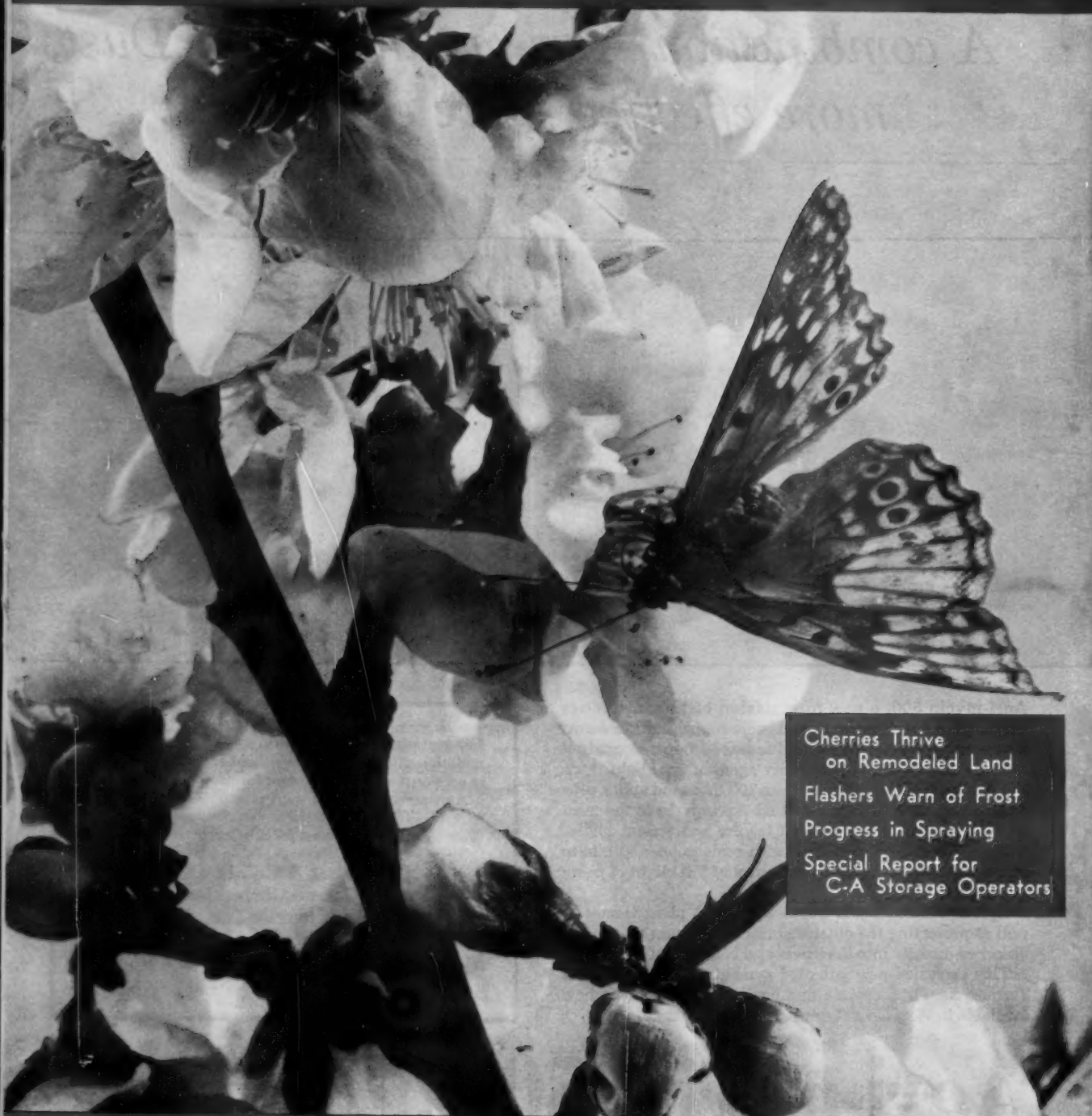


American Fruit Grower

WESTERN EDITION

MARCH • 1959



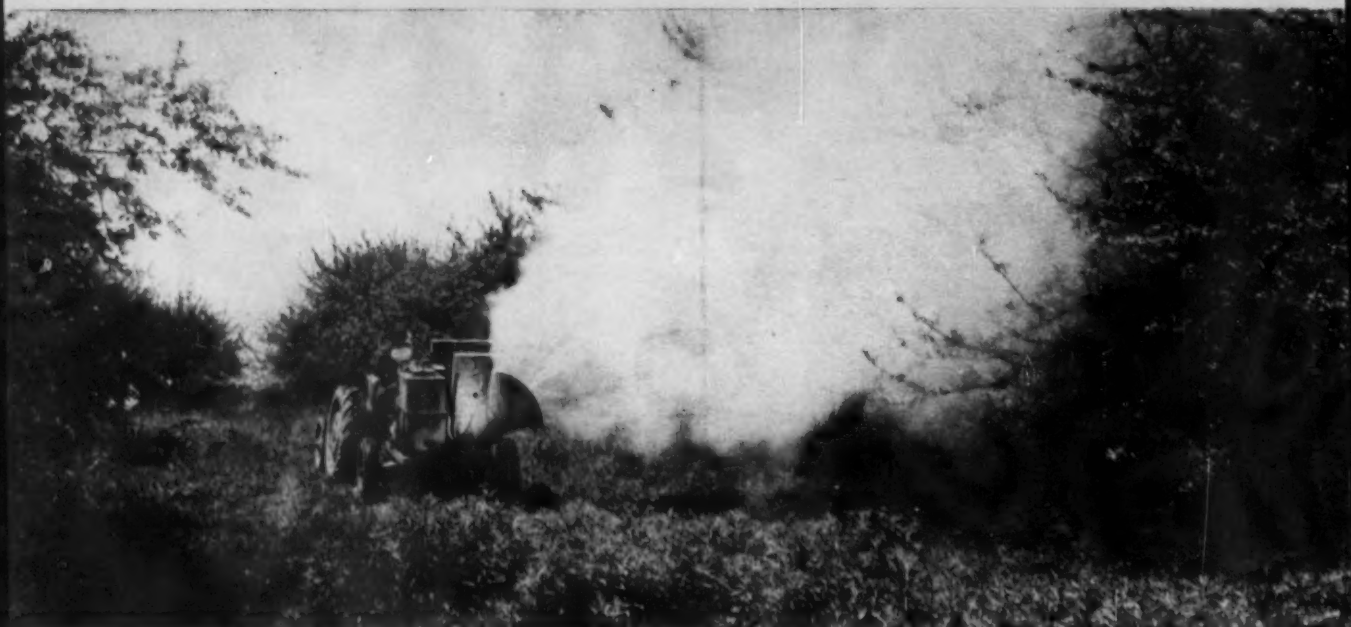
Cherries Thrive
on Remodeled Land
Flashers Warn of Frost
Progress in Spraying
Special Report for
C-A Storage Operators

Spray Thinning Pears and Peaches

New! For Fire Blight Control

Agri-mycin® 500*

*A combination Agri-mycin Copper Dust,
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Agri-mycin 500, a new formulation of the antibiotics Terramycin,® streptomycin and basic copper sulfate, forms a synergistic action to give increased control against *Erwinia amylovora*, the causative agent of fire blight.

Four years of tests on more than 100 thousand apple, pear and walnut trees have shown that Agri-mycin is the most effective control yet discovered for fire and walnut blight.

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"Soil around Caribou is rough and rocky..."

FIRESTONES OUTWEAR ANY TIRES I'VE TRIED IN IT!"



Ken Irving (on tractor) checks the long-wearing traction bars on his Firestones with Caribou Firestone Dealer, Anthony Swiek.

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*FIRESTONE T.M.

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American Fruit Grower

Cover photograph showing peach blossoms and butterfly is by Bob Taylor.

VOL. 79

MARCH, 1959

No. 3

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E. G. K. MEISTER, *Publisher*

RICHARD T. MEISTER, *Editor*; E. K. GOULD, *Managing Editor*

Associate Editors: H. B. TUKEY, R. B. CAMPBELL, ELDON S. BANTA

Art Director, GEORGE M. ROSS, *Production Manager*, J. S. BENDER.

EDWARD L. MEISTER, *Director of Advertising*

District Advertising Offices

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AMERICAN FRUIT GROWER



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- Mild action, greatest margin of safety, and widest range of compatibility.

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SEE WHY MORE
GROWERS INSIST
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NOW AVAILABLE IN BOTH THE REGULAR 1 LB. CAN, AND
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SPRAYERS TO ELIMINATE ALL MEASURING.

Order PHIX from your dealer early. Insist on PHIX—GET THE
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WHEN YOU USE PHIX. If your dealer does not have it, write, wire
or phone your order to us with your supplier's name.

Attention!

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LEAF BLIGHT AND STEM-END FRUIT ROT DISEASES
CAN CAUSE ENORMOUS CROP LOSSES
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AN EARLY SPRAY WITH PHIX IS THE MOST IMPORTANT AND MOST
EFFECTIVE SINGLE CONTROL MEASURE AVAILABLE FOR KILLING
THESE DISEASE ORGANISMS—PROVED IN EXPERIMENT STATION
TESTS ASK YOUR DEALER FOR PHIX.

Free leaflet available describing
these diseases

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Chicago 45, Illinois

LETTERS TO THE EDITOR

The Grower-Processor Problem

Dear Editor:

As you probably know, no fresh eastern apples are allowed in California. However, there is no regulation on eastern canned apples. This would be a good year to try the western market for our processed apples. With the processor buying the highest quality apples of all times, at the lowest prices to the grower, he should be in a position to compete with any market.

Two years ago I heard a processor's agent complaining about how the Michigan fruit growers were delivering a very poor quality of fruit to the plants. I suggested that it was due to the very poor prices he was paid. But the canner has always bought, even under contract, on the basis of f.o.b. plant in farmer's container, subject to grade and inspection. They want only U. S. No. 1 or better at the lowest price possible.

This year it is different, but only a little—just a little lower prices than ever before.

As a grower of the famous pie apple, Northern Spy, I had hoped I could sell to the processor. Early in the season they quoted 2 1/2 cents per pound f.o.b. plant or even a little less in some cases for canner grade. They wanted orchard run in the farmer's crates or boxes. They wanted the farmer to pay for grading, taking only the very best at 2 1/2 cents but buying the rest, which might run quite high, at from nothing to \$1 per cwt. They couldn't lose, but the farmer might lose his shirt.

One processor paid me \$1.75 for the best of a 285-bushel load on which the freight was \$60, which I paid, and the load brought \$166 or \$106 net. My picking and handling was around 25 cents per bushel out of that \$106. One thousand bushels brought \$2 per cwt f.o.b. my storage in my crates. I haven't got all my crates back yet. But only about 60% brought \$2, the balance from nothing to \$1 per cwt, to net an average of 60 to 80 cents per crate.

We are trying to organize a Michigan Processing Apple Growers Association to be affiliated with the eastern growers. We hope we can get a big pool of 1 to 3 million bushels. We hope it will help, if only a little! I feel bad today.

St. Johns, Mich.

Robert D. Ward

Somewhat there is not the good working relationship between apple producers and apple processors that there should be. The one is dependent on the other. Let's hear the other side of the story and think in terms of constructive criticism. We need to work together, not against each other.—Ed.

Blueberry Yield Doubled

Dear Editor:

In regard to my article in your October issue (*He Cages His Blueberries*), I thought you might be interested to learn that my 1958 crop was nearly double the 1957 yield.

I have 60 bushels in my planting but I am only counting 48 producers. According to this year's showing, Herbert was the best producer, then Berkeley, Earliblue and Bluecray, Coville, and Bluecrop. The first picking of Earliblue was made on July 5, 1958, and the last official picking of Herbert and Coville on August 29, 1958. Total production was 425 quarts.

North Plainfield, N.J.

John W. Reid

AMERICAN FRUIT GROWER



*"They treat you fine
at the
Goodyear Sign!"*

Expressly designed
to harness the high power
of today's tractors

**TRACTION
SURE-GRIP**

WITH

**"TORQUE
CONTROL"**

Delivers Traction—Action at the Point of Power



Modern tractor power has been moving ahead fast! In 10 short years, drawbar pull has increased up to 30%!

Engineers call this power-surge "torque" — the work-producing extra twist delivered to drive-wheels.

TRACTION SURE-GRIP IS BUILT TO HANDLE THAT TORQUE — turns twisting action into traction. That's why it's on the newest, most powerful tractors.

SINEWED BY EXCLUSIVE 3-T Cord, triple-tempered to be triple-tough — and built stronger in every way — TRACTION SURE-GRIP stands off buckling, buckle

breaks, cracking and rim slippage — withstands today's higher-powered wallops of rocks and snags and the extra strains at lug bases.

COMBINED WITH GOODYEAR'S WORLD-FAMED TREAD DESIGN, ruler-straight lugs and "Wedge-In" action—you have the tire that makes the most of the power engineered into your high-torque tractor.

See the TRACTION SURE-GRIP with "Torque Control" on the very latest farm tractors—or call your nearest Goodyear dealer. Goodyear, Farm Tire Dept., Akron 16, Ohio.

For unexcelled
front tire performance:

NEW SUPER-RIB

3 ribs for
better steering,
better flotation,
better wear!



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MORE FARMERS PREFER GOODYEAR TRACTOR TIRES THAN ANY OTHER KIND!

A NEW CHEMICAL DISCOVERY!

ETHION

Gets 'em before they can get started in your orchard



KILLS MITES



KILLS APHIDS



KILLS SCALE

A HIGHLY EFFECTIVE INSECTICIDE-MITICIDE FOR LATE DORMANT APPLICATION WITH OIL

Ethion, discovered in the research laboratories of Niagara Chemical Division, Food Machinery and Chemical Corporation, is now being marketed through selected formulators throughout the country. It is an organic phosphate insecticide-miticide. Over three years of field testing have proved ethion to be an economical and effective aid to fruit growers.

ECONOMICAL TO USE

Superior pest control with ethion-oil sprays can be obtained with lesser amounts of oil, thus providing a wider range of safety from oil injury, while increasing insecticidal efficiency.

KILLS OVERWINTERING STAGES

The primary usage for ethion is for late dor-

mant applications in combination with spray oils on deciduous fruit trees to control overwintering stages of mites, aphids and scale. These pests can be controlled by this application more effectively than with later sprays, therefore giving protection before insect damage occurs. By spraying with ethion during the late dormant period, this job can be done more economically and most effectively at a time of the year when other orchard duties are less demanding.

WHERE TO BUY

Many formulators and their dealers now have ethion in stock. Others are being added rapidly. Write Niagara Chemical Division, Technical Chemicals Department, Middleport, New York for the name of your nearest outlet.

ETHION is a product of the Technical Chemicals
Department, Niagara Chemical Division
Food Machinery and Chemical Corporation, Middleport, N.Y.

The Fruit Industry and UNITY OF PURPOSE

It seems fitting, as another growing season is upon us, to publish excerpts from a talk presented by Dr. H. B. Tukey at the recent dedication ceremonies for the Starkrimson Delicious apple, Bisbee strain, in Hood River, Ore.

Dr. Tukey, who is head of Michigan State University's department of horticulture, associate editor of AMERICAN FRUIT GROWER, and an advisor to the Atomic Energy Commission, takes a look at the happenings in the fruit industry with the human element in mind.

In his outlook for the future, he stresses unity of purpose if the fruit industry is to prosper to the utmost, a program the editors of this publication staunchly support.

By H. B. TUKEY

JUST as the *model* is the basis of the automobile industry, so is the *variety* the foundation of the commercial fruit industry. So much is this so that when we speak of the sour cherry industry we do not speak of the several thousand varieties of sour cherries that are known; we speak almost exclusively of the Montmorency variety. When we speak of the pear industry, we are scarcely conscious of the fact that we are speaking largely of a single variety—the Bartlett. The eastern grape industry is the Concord. The Delicious apple and its strains dominate the commercial apple industry.

One of America's great pomologists, U. P. Hedrick, one-time head of the department of horticulture at Oregon State College and later director of New York State Agricultural Experiment Station, at Geneva, said, "It is in the origination of new varieties of fruits—new protoplasm—that fruit growing really advances." And Liberty Hyde Bailey, America's great plantsman and horticulturist, repeatedly reminded us that eventually we must develop varieties of

fruits, vegetables, flowers, and ornamentals adapted to every local area.

□ □ □

And now we enter the Atomic Age. Put to its proper purposes, atomic power could marvelously help to reduce the want, the greed, the covetousness, and the strife that mark our human ways.

For example, water is, at the moment, the limiting factor in crop production. Only 1% of the earth's surface is irrigated, yet that 1% feeds one-third to one-half the world's population. If and when with cheaper power sea water can be freed economically of its saline content, many areas of the earth which are now unproductive may become productive. Fertilizers should become cheaper, and transportation easier and more rapid.

Certainly the new forces will tend to accelerate the trends already in operation. By an increase in the availability of power through the energy of the atom itself, the trend will be to increase production, to improve quality, to increase competition between varieties and regions, to increase the use of processing methods, and to maintain a high level of consumer purchasing power.

In terms of land use, areas of production, and economic distribution, there will be some major readjustments. Small operations should give way still further to larger operations. With increased production added to present supplies, problems will be faced which can be met only by standardization, co-operation, organization, and some enlightened system of crop and price stabilization.

□ □ □

As production problems are met and conquered, the problems of the future will be more and more those that involve man's relation to his fellow man. We need to study and understand management and labor.

We need to do something about our public relations. It is shocking to read in the press the distorted statement that the average subsidy per farmer is \$1000 a year and that on the basis of an average valuation of \$20,000 per farm, this represents an average payment by the government of 5% on the investment!

We need to employ public relations experts as Australian fruit growers have done. Each of us needs to do what he can in his small way to build
(Continued on page 48)

ONE ACRE *to* SEVENTY... A DAY

In 1884 two men sprayed one acre of orchard in a day. Today—75 years later—two men cover 70 acres in a day

By HOWARD INGERSON

John Bean Division
Food Machinery & Chemical Corporation
Lansing, Mich.



John Bean with sprayer which he invented in 1883 and started manufacturing in 1884.



1900-1920: Small power sprayer supplying two long spray rods and nozzles. Crew of three workers would spray from 5 to 6 acres a day.

BACK in the period of commercial orchard hand spraying from 1884 to the late 1890's, the regular spray crew included two men who alternated at pumping and holding the 10- to 14-foot long spray "rod." The spray material was usually discharged through one or two nozzles at the end of this long rod. At the end of a long, hard day's work, only 1 acre of mature apple orchard had been sprayed.

Today, two men *riding* comfortably, one on tractor and one on supply truck, and operating "push buttons" or valves, protect 60 to 70 acres of mature apple orchard in 10 hours.

From hand pumps, the evolution of spraying methods and equipment took a step forward when, at the turn of the century, gasoline engines were adapted to farm use. Power sprayers were shown and demonstrated in the early 1900's.

The period from 1910 to 1920 was one of rapid expansion of orchard acreage. Large individual and company-owned orchards were coming into bearing. The labor shortage of World War I called for the development of larger, faster sprayers. Pumps of 12 to 15 gallons per minute became regular equipment, with tank sizes to 300 gallons. Gasoline engines had been improved, made lighter in weight, and 6- to 10-hp sizes were available for these larger pump sizes. Using the larger of these sprayers, a two- or three-man crew protected 10 to 15 acres of mature orchard per day.

One of the most important contributions to labor saving came in 1916 with the invention of the *adjustable type spray gun* which made it possible to change the spray pattern quickly and to secure effective spray coverage at greater distances.

Even with improved spray guns, it was difficult under some wind conditions to spray the tops of large fruit trees with the spray man on the

ground. It logically developed that spray "towers" or platforms were mounted on the sprayers. These devices were usually homemade.

In the period from 1920 to 1935, pump capacities were increased to 45 gpm and tank sizes, to 600 gallons. In the early 1920's crawler tractors were beginning to be used for hauling orchard sprayers, and by the late '20's wheel tractors were coming into this service.

The next step was the replacement of the sprayer engine with tractor

75TH ANNIVERSARY

With the observance this year of the 75th anniversary of John Bean Division, the author reviews the progress made in commercial orchard spraying methods and equipment.

power take-off drive under favorable operating conditions. As larger-capacity, heavy-duty pumps were available and larger tractors put into orchard use, this combination of tractor with power take-off driven sprayer became almost universal in many orchard sections.

In the period from 1920 to 1935, with larger-capacity pumps available suited to pressures of 500 to 600 pounds, stationary sprayers found a place in orchards too steep or too closely planted to permit the use of portable equipment. In some of these piped orchard installations the most distant hose connection was more than a mile from the sprayer, and high pressure was required at the pump to overcome loss of pressure in the long pipe lines.

While steel sprayer frames, axles, and wheels had been regular construction for some years, wooden spray tanks were still regular equipment until 1935. The first line of all-steel portable sprayers was offered in 1935, and within a few years steel had largely replaced all wood in sprayer construction.



creased, the rate of travel of the sprayer and the "rate of work" is increased. For this reason, the grower with large acreage selects the hydraulic sprayer with large pump capacity, while the medium-acreage grower can protect his smaller acreage in the same limited time with less pump and nozzle capacity.

This same principle applies to air spraying. Accordingly, air sprayers of different air capacities are available for different acreage requirements, including air attachments for hydraulic sprayers.

After the principle of modern air

1959: Speed Sprayer with two-way discharge of 4x concentrate spray material, protecting 6 to 7 acres mature orchard per hour.



1940: Crawler tractors, rubber tires on sprayer, spray tower, and adjustable spray guns added up to thorough and rapid orchard protection.



1947: Fast, efficient spraying was made possible by two-man riding crew with a manually-controlled spray gun mast.

With 35 gpm pump capacity and 500-gallon tank size, and a two-man spray crew, it became regular procedure to protect 20 to 30 acres of mature apple orchard in a day's work.

The period from 1935 to 1945, including the labor shortage of World War II, showed the need for still greater laborsaving devices in orchard spraying. By 1947 rapid conversion began from hand directed spray guns to semi-automatic and then to entirely automatic spray devices, known as spray masts or booms.

The use of air as the carrier for spray chemicals was practiced in a limited way for many years. This was done as dusting, mist-dusting, mist-spraying, and various other combinations of application methods.

All the methods and equipment used until 1937 were dependent on relatively low volumes of air, in the range of 3000 to 8000 cubic feet per minute, usually at relatively high velocities of 100 to 150 mph at the

air outlet. This combination of low volume air with high velocity had limited carrying power or penetration, and, accordingly, its use was limited to the few hours in the day or night when there was little or no wind.

Fortunately for the orchard industry, a grove caretaker in Florida, with several thousand acres of groves to be sprayed several times a season, started on a new approach to air spraying equipment. This was the use of a large volume (30,000 cfm or more) at medium velocity (90 to 100 mph). From this start in 1937 has come the almost complete changeover from hydraulic to air spraying, with a reduction of labor costs.

In reviewing the evolution of high pressure or hydraulic spraying, experienced spray men know that as pump and nozzle capacity is in-

creased, the rate of travel of the sprayer and the "rate of work" is increased. For this reason, the grower with large acreage selects the hydraulic sprayer with large pump capacity, while the medium-acreage grower can protect his smaller acreage in the same limited time with less pump and nozzle capacity.

(Continued on page 48)

Air attachments replaced spray guns and masts on high-pressure sprayers and served to bridge the changeover from hydraulic to air sprayers.



HE GROWS 7 Fruit Crops A YEAR

Diversification has played a key role in the success of this California grower

By NORMAN W. ROSS
Farm Advisor, Modesto, Calif.

KEEPING his eggs out of one basket could be the byword of Edwin Colt, of Modesto, Calif. Seven fruit crops dominate the 56-acre Colt holdings. Diversification has insured an income as well as lowered the labor peak and spread the hired labor requirement over a longer period.

Production records from Colt's peaches, apricots, Boysenberries, and grapes indicate tonnage well above county and state averages. Crabapples and quinces are not normally grown in Stanislaus County so it is not possible to assess their productivity.

English walnut trees, which border the orchards, have continuously contributed their share toward a comfortable income.

Clingstone peaches, some four varieties, dominate orchard operations. These 15 acres normally produce some 300 tons of fruit. Cling peaches have but one home—the tin can, so these go to a local cannery. Freestone peaches, namely, Fay Elberta, account for 5 acres. This block of fruit normally yields from 100 to 120 tons of fruit.

Seven acres of apricots can normally be expected to yield some 40 to 60 tons of fruit. This fruit usually goes to the cannery. In the past, some of it has been dried. Apricots are the first crop to bloom in the Colt orchard. Frost has been known to injure apricot blooms, so orchard heaters dot this block during the springtime.

Grapes for the winery, some 100 tons annually, can be found in the 8-acre vineyard. Seven acres are strictly wine grapes. The other acre, Thompson Seedless, can be used for shipping, drying, or for wine making.

Boysenberries are the latest Colt

enterprise. These delicious improvements over blackberries are normally processed by one of the local freezers. About 6 tons of berries per acre provide for a good many pies and jars of jam for national consumption.

Fruit for quince jelly has provided an unusual but lucrative income. The one thorn in the side of this versatile grower is his crabapples. Inconsistent fruit sets have plagued this operation. Recent pollination studies in this orchard have indicated the need for cross-pollination.

Recommended cultural operations are well planned in advance and then performed on schedule. Records of what has taken place are kept in a pocket notebook. Frequent reference to such records enables Colt to eliminate mistakes that they have been made and repeat beneficial operations.

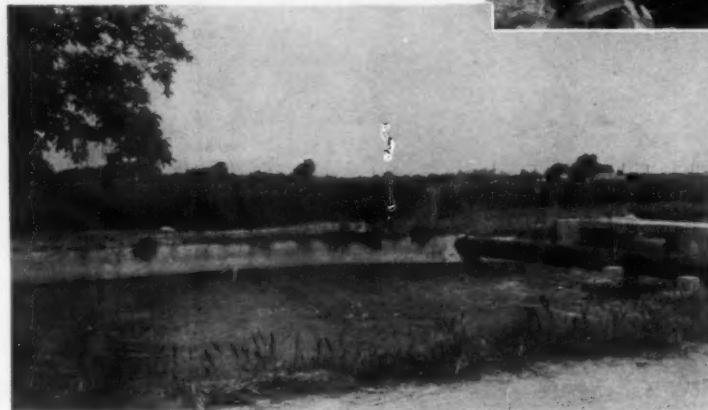
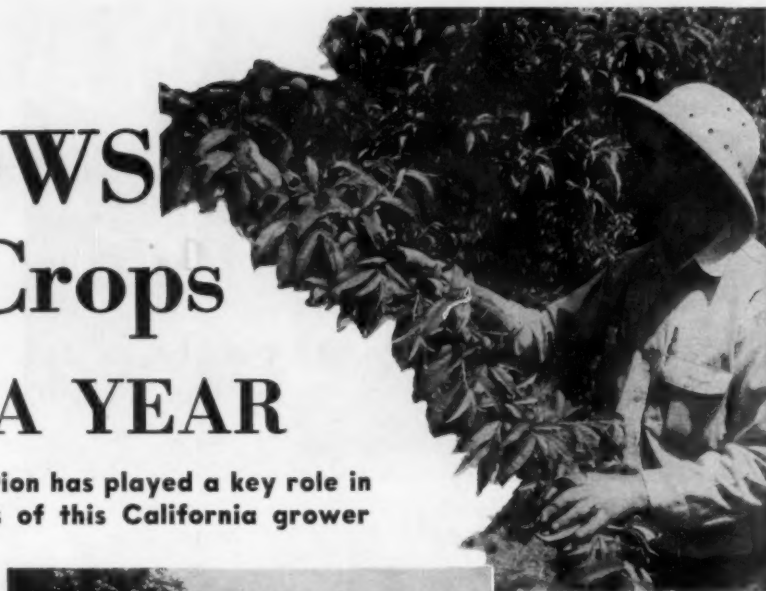
New orchard problems apparently are the spice of life for Colt. Controlled experimentation, under the guidance of the agricultural extension service, has shown Colt a new or perhaps better practice on several oc-

casions. This approach was probably instilled in his mind while a student at the Davis campus of University of California.

An example of such experimental work is that of spray thinning peaches. Eight years of experimental spray thinning work is recorded in Colt's notebooks. Rains following bloom applications of dinitro sprays have often caused excessive fruit thinning. The Colt notebook reveals that if rain is expected within 48 hours, spraying with a dinitro material would be unwise. Postbloom sprays of 3 Chloro IPC have also been tried over the past five seasons. Fairly good thinning action has been had at about 125 parts per million.

Both approaches to spray thinning still have some bugs in them. Incentive to carry on this work is to be found in production cost records. Hand thinning of peaches has normally cost about \$90 an acre. Edwin Colt has the incentive, the operating ability, and one day will have a key to another success.

THE END.



Edwin Colt (top photo) is examining a 'hanger-on' on one of his spray-thinned peach trees. The scene of the irrigation canal (bottom photo) shows view of Colt's Boysenberries.

If we continue to limit soil nutrition to N-P-K . . .

Can we expect improved fruit quality and yields?

Fruit growers from all sections of the country are giving attention to secondary and trace elements. They're finding that it takes more than nitrogen, phosphorus and potash to achieve bonus yields and a higher percentage of top grade fruit.

Take magnesium for example. All plant life needs it. It is an element necessary for the development of chlorophyll or green coloring matter in the leaf. Without adequate chlorophyll the entire life process of plants is slowed down, resulting in poorer quality fruit and lower yields.

Magnesium also rivals phosphorus for importance in seed formation. It helps build disease resistance by producing balanced nutrition. And this vital element aids in the fixation of nitrogen by legumes . . . important for cover crops.

How to detect shortages

Magnesium shortages in your soil show up in a familiar but costly pattern. The deficiencies aren't visible until damage is done. In fact, by the time deficiency symptoms appear you've undoubtedly been paying a heavy penalty in

reduced yields and quality for several years.

The first visible evidence of trouble shows up in yellowing between the green leaf veins. Later these yellow areas near the leaf tips turn brown. Premature dropping of leaves and pre-harvest fruit dropping are also signs of magnesium shortages.

Deficiencies widespread

From Maine to Florida, Wisconsin to the Atlantic coast . . . and in many Western areas, extension workers and soil specialists have established magnesium deficiencies.

The reasons stem from many causes. Heavy rainfall, erosion and overcropping of the land have cut deep into natural reserves. And high analysis fertilizers have added to the shortage because the carrier that contained some magnesium has been replaced by increased percentages of N-P-K.

The answer

There are several ways to treat magnesium deficiencies. But the most practical and effective is the use of Double Sulphate of Potash-Magnesia . . . proved profitable and practical in every crop area.

Double Sulphate of Potash-Magnesia corrects magnesium deficiencies, and at the same time, builds up dwindling reserves of sulphur . . . a hard-to-recognize plant

need because the negative symptoms so closely resemble nitrogen starvation.

Sul-Po-Mag* advantages

To be completely effective, the ideal magnesium form is water-soluble and granular in structure. The material that meets both requirements is marketed under the trade name Sul-Po-Mag*. It can be bought in mixed fertilizers to match the requirements of specific crops. In addition, Sul-Po-Mag is ideal for direct application where only potash and magnesium fertilization is indicated.

Granular in form, Sul-Po-Mag stays in the soil longer to feed the crops longer — and sustain growth over the season to help produce top yields.

For complete information on the role of Sul-Po-Mag in plant nutrition and its application to fruit quality and yields, write, c/o the address below, for our free Magnesium Booklet.

*Trademark, International Minerals & Chemical Corporation



Look for this identifying Seal of Approval when you buy. It's your assurance of extra-value fertilizer.

Creators of Living Minerals



POTASH DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Administrative Center: Skokie, Illinois

11-58

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ORCHARD PRODUCTION
AT LOWER COSTS...**

**...mulch with a
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CHIPPER**



Tree trimmings are one of your best and cheapest sources of mulch. A Fitchburg Farm Chipper will reduce prunings quickly to moisture-holding wood chips. You eliminate the job of hauling brush.

A mulch of wood chips keeps weeds down... discourages rodents... gives orchards better tilth... a moisture-holding capacity to bring trees through dry spells.

Fruit trees yield more fruit, larger fruit, fruit that ripens earlier when local fertilizer requirements are supplemented with five to seven inches of wood chips around the trees. "Drops" are cushioned, bruise less, and are easier to find.

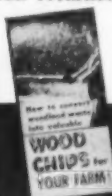
You will find the Fitchburg Farm Chipper a working machine in your orchard:

- The high chrome steel blades are tough and will need only periodic sharpening.
- Fitchburg Farm Chippers require only minimum maintenance to keep them ready to work.

Anywhere you can drive your tractor, you can chip prunings with a Fitchburg Farm Chipper. Combine your work, chip your tree trimmings with a Fitchburg Farm Chipper, and mulch your orchard in ONE SIMPLE OPERATION.

This Fitchburg Fact Folder will tell you about Fitchburg's exclusive: One Year Guarantee—Patented Safety Spring-Activated Feed Plate—with complete machine specifications included.

A Farm Chipper's cost of from \$650 is soon returned by your increased fruit production, the lowered farm labor costs. Find out how a Fitchburg Chipper will fit your orchard.



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COME ON... LET'S BARGAIN

Virginia's Kenneth Robinson is providing hard-hitting leadership in the drive to get apple growers to organize in order to negotiate with processors. He has stumped the winter hort meeting circuit from Roanoke to Syracuse, speaking eloquently and with conviction. Excerpts from his talk at the Pennsylvania State Horticultural Association meeting held early in February at York define the position of leading eastern growers who believe that grower bargaining with canners will bring about much desired price stability.

Growers are now being canvassed to sign contracts with their state's grower controlled bargaining associations. The goal is 50% of the processing crop on a tonnage basis.—Ed.

By J. KENNETH ROBINSON

THE most pressing need in the apple industry today is to find a means of stabilizing the violently fluctuating prices received for fruit for processing purposes. The problem is made complicated by the nationwide span of the processing industry, the difficulty of overcoming state line legal hurdles, a difference in grower philosophy among the producing areas and a shocking lack of accurate information flow between grower groups as to statistics, crop movement, prices, weather, etc.

However, the greatest deterrent to co-ordinating and stabilizing our industry is the grower himself. His disorganization and individual free-wheeling represents today's last outpost of old-time farmer philosophy. We stand alone as the sole commodity industry of any size that is totally unprepared to meet the economic pressures of our times.

Processors, plagued by an industry price-cutting philosophy and a generous productive capacity, are not going to pay any more for fruit than they have to. AND WHY SHOULD THEY? Don't you as growers try to buy your supplies as reasonably as possible?

Encouraged by high processor prices during the war and again in '53 and early '54, too many growers in the Appalachian area and in western New York forgot there was a fresh fruit market. They forgot how to SELL.

In every year of excess of processing fruit and low prices, the grower-for-fresh suffers. As the unprepared, disorganized processing growers hastily try to divert some of their production to fresh, all market stability disappears.

How may growers act together to influence raw fruit price structure and the flow of fruit to independent processors on an area and inter-area basis?

There are two ways. Marketing orders, federal or state, and bargaining associations. All marketing orders require permissive legislation and are

compulsory within the covered area. Bargaining associations are strictly voluntary as to participation.

A federal marketing order offers the broadest single solution to our industry problems. But, it involves greater participation of the federal government in our business affairs. Many of our growers are highly critical of marketing orders and lack confidence in them. Furthermore, apples are specifically barred from coverage under present U. S. statutes.

State-level marketing orders might help if the problem were only statewide in scope. In addition, only New York has the permissive legislation necessary. Even if authorized in all states, the complication of interstate adjustments between governments and growers would make the state marketing order solution to our processing problem of dubious worth.

We are left, then, with the bargaining association approach.

What is a bargaining association? It is a voluntary legal affiliation of agricultural producers having as its purpose the establishment of a joint price for an individually grown commodity.

With this type of program no legislation is necessary. Title to your fruit is not lost. As in the past, you continue to deal directly with the processor of your choice and are paid directly by him. However, for pricing purposes only, control of your processing fruit passes to the governing body of the bargaining association. This applies to all of a member's processing fruit, regardless of his estimate of the volume.

The bargaining association's effect lies in removal of the ability of the processor to exploit growers because of their unorganized numbers. Its aim as defined by Ralph Bunje, manager of California Canning Peach Association, "is to secure for member growers the highest reasonable price for their processing crop that can be justified, based upon the prevailing economic conditions."

Since the negotiations are based on both price and volume, a base is estab-

lished that historically serves as an industry guide for dealing with non-member growers. Since the processor contract stipulates that any higher price paid *anyone* automatically becomes the price to all association members, participants are protected against higher prices and bonuses to outsiders.

Remember this, if nothing else. Any group of growers, any size and any place, can form a bargaining association. Again, no enabling legislation is required.

Some moves in this direction have been made in the apple industry. Where do we stand?

A grower agreement identical in terms, and intended for use in all participating states is in final form. Grower support, enthusiasm and determination seem more than sufficient to insure recognition and guarantee effectiveness. We honestly anticipate grower participation in excess of 50% of the free processing tonnage in our four states of Virginia, West Virginia, Maryland, and Pennsylvania.

Western New York is the producing area which most concerns us. Growers there seem discouraged by the failure of the 1956 effort to begin bargaining and disappointed by the failure of a processing fruit price to stabilize the industry.

Apple producers in New York are presently inclined to give first priority to getting grower approval of an apple marketing order. Initially this would probably be only to authorize the compulsory collection of promotional funds. Later, the indication is they will tie a grade and size marketing order to a bargaining association.

New York does not look with disfavor on bargaining. They simply give it a down-rated priority. The best way of getting Western New York growers under our bargaining banner is to make very sure that we do a thorough and successful job here in our area.

A Michigan association will be ready to work with us in negotiations concerning the 1959 crop. Latest information indicates excellent grower participation out there.

California apple growers of the Sebastopol area are meeting to organize a bargaining association on February 9.

So, there we are. Michigan and California are under way. New York is sympathetic and interested, and agrees in principle.

The groundwork is complete. The talking stage is over. Let's get to WORK!

We saw our hasty 3D program of Diminish, Defer, and Divert work last fall. Now let's put a 3P program to work. PARTICIPATION! PUSH! PATIENCE! THE END.

MARCH, 1959

Performance leaders in orchard and grove



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D-SERIES TRACTORS

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Now you can have this big advantage in fully shielded orchard power. The combination of shielding you want — complete or partial — is available for field installation on Allis-Chalmers D-14 (36.65 hp.) and D-17 (54.43 hp.) Tractors.

The **Power Director** speeds your work with 8 forward speeds . . . shifts on-the-go for 42% more pull in low range, or almost 50% more work capacity in high range. **Two-Clutch Power Control** keeps PTO-driven sprayers operating at full capacity regardless of forward motion. **TRACTION BOOSTER** system transfers weight automatically to tractor drive wheels, as needed, for ground-gripping traction. **SNAP-COUPLER** hitch saves time when switching from job to job.

This is the **new look** in earning power for the orchard and grove. See your Allis-Chalmers dealer — today.

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ALLIS-CHALMERS

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Growers report complete



"Least expensive of all miticides"

"*ORTHO* MITOX is the least expensive of all miticides I've ever used because one spray did the job for the whole growing season," reports Mr. David Simpson, owner of the 450 acre Simpson Orchards Co. at Vincennes, Indiana. "*ORTHO* MITOX really controls the over-wintering eggs and nymphs, preventing damage to trees — this pays off in a better bud set the following year."

For Better Quality Fruit — Control Mites with *ORTHO*® MITOX

The outstanding residual miticide, *ORTHO*® MITOX provides excellent control of European Red Mite for as long as three months with only one thorough application. It is particularly effective in the destruction of egg populations, preventing red mite "build-up" during the growing season. And, *ORTHO*® MITOX is compatible with most insecticides and fungicides.

Scientifically trained Fieldmen located in all the Nation's fruit growing areas.

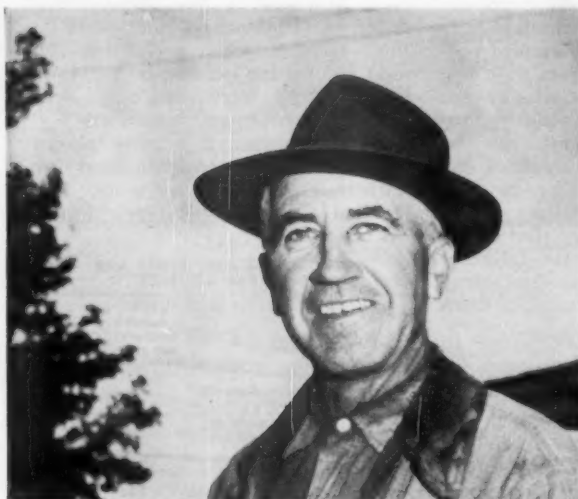
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Sacramento, California
San Jose, California
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Maumee, Ohio
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Columbia, South Carolina
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Orlando, Florida
Springfield, Massachusetts

mite control with one application!



"Long lasting action on red mites"

Apple grower Howard Whelehan of Rochester, New York, reports these excellent results after applying *ORTHO* MITOX during the pink stage: "I didn't have to spend time and money spraying additional miticides for the rest of the season. *ORTHO* MITOX really proved itself to me—it has a long lasting action on red mites, and doesn't hurt the beneficial insects."



"Excellent control for the past two years"

"*ORTHO* MITOX proved excellent in controlling our mites during the past 2 years," reports James H. Meyers, owner and Stanley Eye, Orchard Foreman, of the 200 acre Norwood Orchards near Harpers Ferry, W. Va. (pictured above, right to left, with *ORTHO* Fieldman Bill Long). "We experimented with check plots and found that one application of *ORTHO* MITOX gave us complete mite control for the entire season."

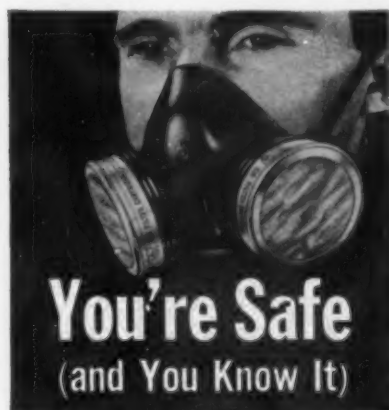


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Apples

Dual Mite-Aphid Control

INCREASINGLY heavy damage by the rosy apple aphid during the past few years now justifies the cost of annual control measures against this insect. As the European red mite also requires annual treatment, this raises the question of possible control of both pests with one or two spray applications of the same material or a combination of materials. Both species can be attacked to best advantage in early season or the period of pre-blossom sprays. The best control period for the red mite is later than that of the rosy aphid; therefore, the selection of the time to apply the dual spray may require somewhat of a compromise.

Excellent control of rosy aphid may be secured by using dinitros in the dormant period, but this is too early for best results against the European red mite. Oils applied in the delayed dormant and reinforced with aphicides such as BHC or phosphate compounds such as parathion, malathion, Diazinon, Trithion, and others will control both mites and aphids. However, the same objections that are made against the use of the dormant application also frequently apply to the delayed dormant spray.

This brings the grower to the pre-pink, shortly to be followed by the pink period and the time for effective control of both the red mite and the rosy aphid becomes rather short. What spray chemicals or combinations can be used at this time to best effect?

Phosphorus-based materials such as parathion, TEPP, malathion, demeton (Systox), Ethion, Delnav, Trithion, Guthion, Phosdrin, Phosphamidon, Diazinon, and others are both aphicides and miticides and will control both species unless the mite population to be controlled has become resistant to them. In some cases a mite population resistant to one material of this group may not be resistant to another, but there is no regularity regarding this.

The sulfur-based compounds are miticides and have little or no effect on aphids; therefore, an aphicide must be added to them for aphid control. Materials such as Genite, Mitox, ovex, Sulphenone, Chlorobenzilate, Aramite, Tedion, and others make up this group. Other miticidal materials, not sulfur based, such as Kelthane and Dimite, also are not aphicides and accordingly

will need a supplementary material for aphid control.

During the past four years practically all of the spray chemicals named in this paper have been tested in the orchards of Ohio Agricultural Experiment Station, Wooster. Due to a general rotation in the use of different miticides from year to year, the populations of the European red mite in these orchards have not become resistant to the phosphorus-based materials. This fact must be kept in mind when evaluating the data from these experiments. All of the materials were used alone and many of them in combinations.

The accompanying table shows the degree of control obtained for both rosy aphid and red mite. The data are summarized, each figure

CONTROL OF ROSY APHID AND
EUROPEAN RED MITE

| Materials and dosage | No. of aphid centers per tree | Mites per leaf |
|---|-------------------------------|----------------|
| 1955 | | |
| Two sprays: Pink, Apr. 19; petal fall, May 6 | | On 7/28 |
| Ovex — 1/2 lb. | 3 | .2 |
| BHC 12% — 2 lbs. | | |
| Diazinon 25% W — 1 lb. | 5 | .4 |
| Kelthane 18.5% W — 1 lb. | 141 | .2 |
| Genite 923 EM — 1 1/2 pts. | 108 | .4 |
| Check—fungicide only | 178 | 13.5 |
| 1956 | | |
| Two sprays: Pink, May 8; petal fall, May 21 | | On 7/19 |
| Kelthane 18.5% W — 1 lb. | 115 | .8 |
| Kelthane 18.5% W — 1 lb. | 12 | .1 |
| BHC 12% G — 2 lbs. | | |
| Genite 923 EM — 1 1/2 pts. | 47 | .8 |
| BHC 12% G — 2 lbs. | | |
| Diazinon 25% W — 1 1/2 lbs. | 3 | .8 |
| Mitox 20% W — 2 lbs. | 27 | .8 |
| Sevin 50% W — 2 lbs. | | |
| Delnav 25% W — 2 lbs. | 10 | .8 |
| Check—fungicide only | 126 | 14.7 |
| 1958 | | |
| One spray: Pink, May 2 | | On 8/1 |
| Ovex — 1/2 lb. | .8 | .1 |
| TEPP 40% — 1/2 pt. | | |
| Diazinon 25% W — 1 1/2 lbs. | .9 | .9 |
| Guthion 18.5% EC — 1 pt. | 4.0 | .6 |
| Tedion 50% W — 1 lb. | 32.3 | .1 |
| Genite 923 EM — 1 1/2 pts. | 60.5 | 1.8 |
| Mitox 40 W — 1 lb. | 80.7 | .8 |
| Trithion F 4 — 1/2 pt. | 1.7 | .1 |
| Check—fungicide only | 75.5 | 20.6 |

The figures secured in 1957 are omitted because there was no aphid infestation that year. However, excellent mite control was secured with materials such as Diazinon, ovex-BHC, Genite, Guthion, and Mitox.

representing the results from at least nine trees. From these data it may be seen that the strictly miticidal materials such as ovex, Kelthane, Tedion, Genite, and Mitox had little or no effect on the rosy aphid. When aphicides such as BHC, Sevin, or TEPP were added to these miticides, aphid control varying from commercial to excellent was secured. Excellent mite control was obtained from the combinations as well as from the miticides used alone.

The phosphorus-based compounds have all given excellent control of

A REPORT ON SEVIN

INSECTICIDE

Many inquiries are being received from growers who have heard about new "Crag" SEVIN insecticide through Experiment Station test reports. Fruit growers in every area have used experimental quantities of SEVIN with outstanding results. On the basis of its performance in widespread field trials, SEVIN shows great promise as a highly effective insecticide with a unique combination of advantages. Development work on SEVIN is close to completion. Watch for future announcements regarding availability of SEVIN for this year's use.

Here is our evaluation of the experimental work and field trials last season:

**SEVIN proved its ability to control the following major insect pests
of apples, pears, peaches and grapes:**

CODLING MOTH

APPLE MAGGOT

PEAR PSYLLA

GREEN APPLE APHID

RED-BANDED LEAF ROLLER

GRAPE LEAF FOLDER

GRAPE LEAFHOPPER

GRAPE BERRY MOTH

PERIODICAL CICADA

ROSY APPLE APHID

ORIENTAL FRUIT MOTH

PEACH TWIG BORER

CAT-FACING INSECTS

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FRUIT TREE LEAF ROLLER

SEVIN is a new and different insecticide that controls insects which have developed resistance to commonly-used insecticides.

SEVIN is easy to handle with safety . . . it's less toxic to humans and animals than DDT.

SEVIN showed long-lasting residual action, which indicates that fewer dusts or sprays will be needed when SEVIN is used.

SEVIN gave good fruit finish.

SEVIN is compatible with most other spray or dust ingredients, except lime, alkalies, copper sulphate and Bordeaux mixture.

SEVIN has been successfully tested as a 50% wettable powder in spraying tree fruits and grapes, and also as an ingredient in dust mixtures for grape and peach insects.

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Now you can spray apples, peaches, cherries with a big volume high velocity air stream—35,000 cfm . . . Use either concentrate or dilute sprays . . . Enjoy absolute pest control at lowest cost per acre . . . Do other spraying jobs done best by air stream . . . And the higher price you get for quality fruit pays for the sprayer . . . You can spot spray with a hand gun . . . Knock grubs out of cattle with a high pressure stream, 20 gpm at 400 psi or 50 gpm at 80 psi . . . Spray bushes, shrubs, gardens, weeds, brush . . . Apply insecticides, liquid fertilizer, disinfectants . . . Flush animal stalls, pens . . . Whitewash buildings, fences . . . Clean tractors, trucks, autos . . . Put out fires.

You can do all this with one sprayer—the 2-fan Hardie Duo-Fan Model 24B, designed, built and priced to give the grower both air stream and high pressure spraying in one compact, streamlined, Hardie quality unit. It's two sprayers for the price of one. Write for literature. Ask your dealer.

OVER 80,000 CUBIC FEET OF AIR PER MINUTE



If you have a big acreage pest control job in orchard or grove, you need the magnificent new Hardie Duo-Fan Model DF-40, delivering more than 80,000 cubic feet of air per minute—the largest air stream sprayer ever built, and the most modern. Another model, the Hardie Duo-Fan Sprayer Model 26D, is especially designed for average fruit acreage. Delivers air at 62,500 cfm. Hardie also builds High Pressure Sprayers for orchard and row crop spraying in a wide range of sizes and styles.



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rosy aphid and also have been highly effective against the non-resistant Wooster populations of mites. In addition to the materials cited in the table, several other phosphates have also given good results, particularly when used in two applications. Due to experimental error, it is impossible to say definitely that any one material or combination is best.—C. R. Cutright, Ohio Agricultural Experiment Station, Wooster.

Special Report to C-A STORAGE OPERATORS

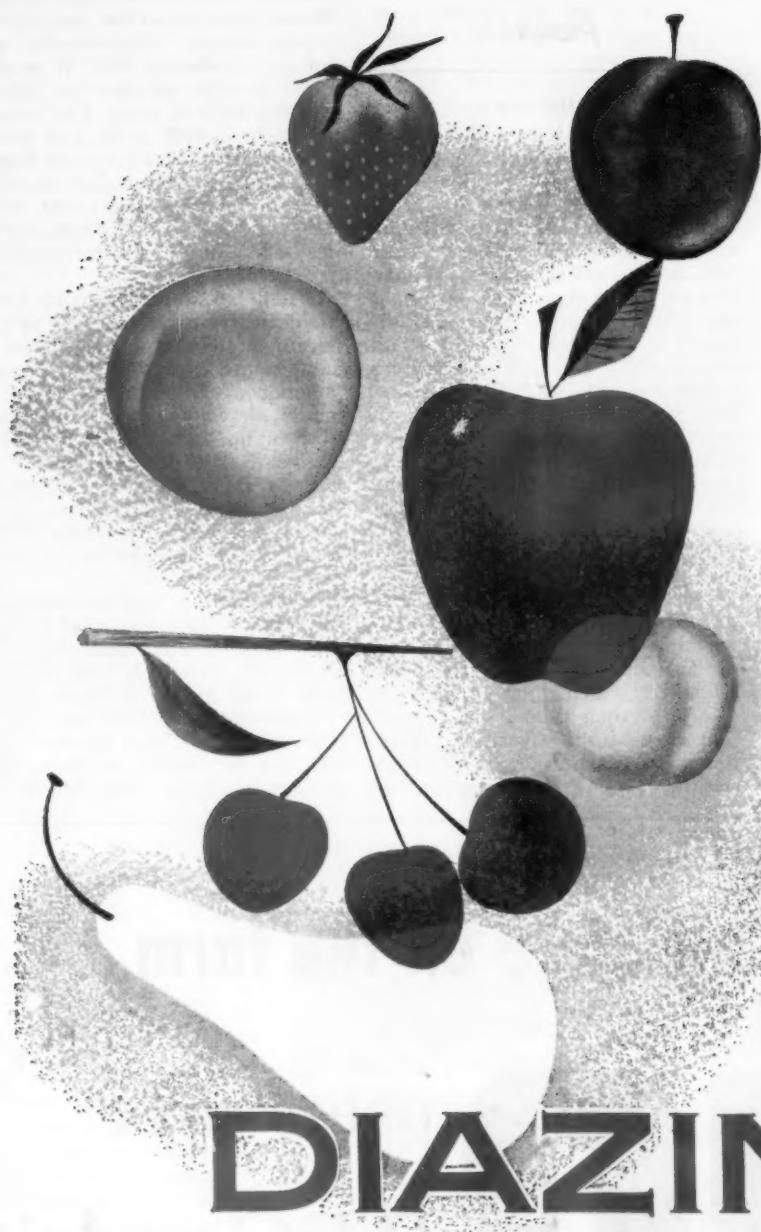
THE methods presently employed in operating controlled atmosphere storages are new, and apple growers as well as research workers are searching for improvements in managing these storages. Among problems facing operators are maintaining proper carbon dioxide and oxygen levels, preventing the accumulation of undesirable odors, and keeping the fruit from losing moisture and turgidity.

I discovered in November, 1957, that lowering the water level in the brine tank of my C-A storage below the outlet of the brine return line almost eliminated the need for caustic soda to keep CO₂ in the room at the proper level.

Further work on this matter during December, 1957, and January, February, and March, 1958, suggested that the water which was sprayed over the refrigeration coils in the room was picking up the CO₂ from the air in the C-A room, carrying it out of the room in solution, and releasing it as it plunged into the brine tank outside the room. This process, substantially reduces the cost of operating a good-sized C-A room and also eliminates the corrosive effects of the caustic soda on the equipment as well as on the operator and his clothing.

While there is still a great deal to learn about various procedures for controlling CO₂ levels with water, it is apparent that the process is fundamentally an absorption of CO₂ by water in the room and its release by aeration of the water outside the room. For instance, increasing the aeration of the water will increase the rate at which the CO₂ is removed from the C-A room. There are other modifications that may also improve the process.

Aeration of the water outside the room enables it to absorb oxygen from the air, carry it into the room, and release the oxygen in the room as it is sprayed over the refrigeration



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multiple
insect
control
on many
fruit crops
with Geigy

DIAZINON

DIAZINON gives you close to harvest control of most major insect pests on a variety of fruits:

APPLES: Diazinon controls:
Apple Maggots; Codling
Moths; Aphids; Scale
Crawlers. Suppresses mites.

PEARS: Diazinon controls:
Codling Moths; Pear Pyslla;
Aphids; Scale Crawlers.
Suppresses mites.

CHERRIES: Diazinon controls:
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ORIGINATORS OF  DOT INSECTICIDES

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coils. Less air, then, is required to maintain the proper oxygen level. The introduction of oxygen by this process is substantial enough to seriously interfere with the lowering of oxygen immediately after the room is sealed. C-A storage operators who attempt the control of CO₂ with water should not start the operation until after the oxygen has fallen to the proper level.

Recent experience indicates that it may be impossible to hold CO₂ levels much below 4% with water alone, especially during the first few weeks after sealing the room. Some caustic soda may be needed in addition to the water process to keep CO₂ below 3%.

Since there is considerable evidence that the water method of CO₂ control may also remove obnoxious odors from the room, this process may be of considerable help in the control of undesirable odors.

Assisting in this work was George Humbert, my son-in-law, with suggestions from Dr. Robert M. Smock, of Cornell University. Additional work on this process and other improvements in C-A storage operation are being carried on in the 1958-59 season by the three of us as well as by a number of other C-A storage operators.—Ralph G. Palmer, Hilton, N.Y.

Pears

Chemical Thinning

RESULTS of tests with apples in various parts of the country have indicated that naphthylene acid amide popularly known as Amid-Thin, was instrumental in breaking up the biennial bearing habit of certain apple varieties. Dr. William Griggs, of the department of pomology, University of California, Davis, reasoned that perhaps Amid-Thin would do the same thing for pears.

Consequently, in the spring of 1956 he treated a block of Hardy and Comice pears in the foothill section of Placer County, east of Sacramento, with Amid-Thin. He used three concentrations of 25 ppm, 50 ppm, and 75 ppm, applied at full bloom, petal fall, and one week following petal fall.

All three concentrations overthinned the trees, particularly the two higher levels. The trees receiving 25 ppm were badly overthinned but still retained approximately 25 to 30% of their crop.

Because of the severity of overthinning, it was not possible to evaluate the effect of time of application.

Records were taken relative to the bloom intensity of the trees the following spring. These results, while meager, indicated that it may be quite possible to alter the biennial bearing habit of pears. The intensity of bloom in 1957 of the non-sprayed or check trees was very satisfactory.

Spurred by the partial success of this preliminary experiment, we established a second pear thinning plot in Lake County, California, in the spring of 1957.

First, we wanted to add certain refinements to Dr. Griggs' original treatments in the hope that we could more closely control the total amount of fruit thinned and, secondly, we wanted to determine whether or not it would be possible to eliminate the development of late or "rat-tailed" blooms. These late blooms are a constant source of potential fire blight infection and the pears never develop into a usable fruit.

We selected concentrations of 12½ ppm, 18¾ ppm, and 25 ppm. The material was applied on April 24 or approximately two and one-half weeks after full bloom.

Previous Amid-Thin work on apples has shown that effective thinning can be obtained as late as three weeks following full bloom, al-



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though the concentration generally had to be increased. It was felt, however, that the delayed application on pears would be less apt to overthin the regular fruit crop and at the same time catch the delayed bloom at a time when it would be most sensitive to growth-regulating substances.

Results show that the material was apparently ineffective in removing late bloom on the Bartlett variety. However, the total number of rat-tailed fruits found in the check treatments was so small (only 3) as to preclude any reasonable summation of the effectiveness of the treatment.

The number of fruits set per 100 fruiting spurs behaved very much as expected. The check trees with no treatment set the equivalent of almost two pears per fruiting spur, while those trees receiving 25 ppm set approximately $1\frac{1}{2}$ fruits per fruiting spur. The lower concentrations produced an equal and intermediate fruit set of 164 fruits per 100 fruiting spurs.

These figures on fruit set are far above the average for apples. This would suggest that the pear tree has proportionately fewer fruiting spurs than an apple tree of the same age and yet contains roughly the same

number of leaves. The pear, then, is apparently capable of sizing in a satisfactory manner from one to three fruits per fruiting spur.

This characteristic does not lend itself to the present techniques of chemical thinning of fruits. The untreated of check trees averaged 637 pounds of fruit per tree while the lower concentration, $12\frac{1}{2}$ ppm, reduced the average tree yield to 431

pounds. As the concentrations increased, the yields became progressively less.

However, the sprayed trees produced slightly larger fruit. The leaves, while flagging markedly for about two weeks following the application of the material, retained a noticeably greener color than did the check trees, and the soluble solids as well as the pressure test at harvesttime were considerably higher than the unsprayed fruit.

It is doubtful if Amid-Thin or any other chemical growth regulator will immediately find acceptance with pear growers in the Pacific coastal area. However, it may have limited uses. By using lower concentrations and applications timed to petal fall, it is felt that the problem of biennial bearing can be somewhat reduced. It also may be of value in orchards experiencing unusually heavy bloom and where the growers feel that fruit set would be far too heavy even for pears.

More research work both with Amid-Thin and other materials will have to be tried and proven before chemical fruit thinning of pears will become commercially acceptable.—*D. C. Alderman, Ext. Pomologist, U. of Calif., Davis, and Russell Gripp, Farm Advisor, Kelseyville, Calif.*



HYDRAULIC ORCHARD PLATFORM

This 20-foot long and 12-foot wide platform was designed and built by apple grower Albert Cleveland, Sebastopol, Calif. Using the Davis loader and hydraulic arms of a Ford tractor, platform will raise to 7 feet from its normal position of 4 feet. A square angle iron frame 33 inches high and 8 feet wide bolted upright to back of tractor lift disk hook-up gives hydraulic arms necessary extra lift. With two men working on platform and one in center of tree, it takes three steps to prune the average sized tree.—*James Roberts.*



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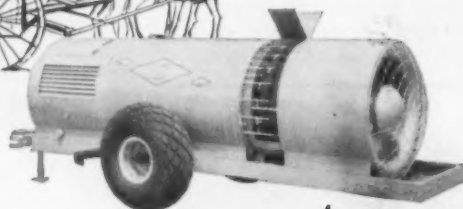


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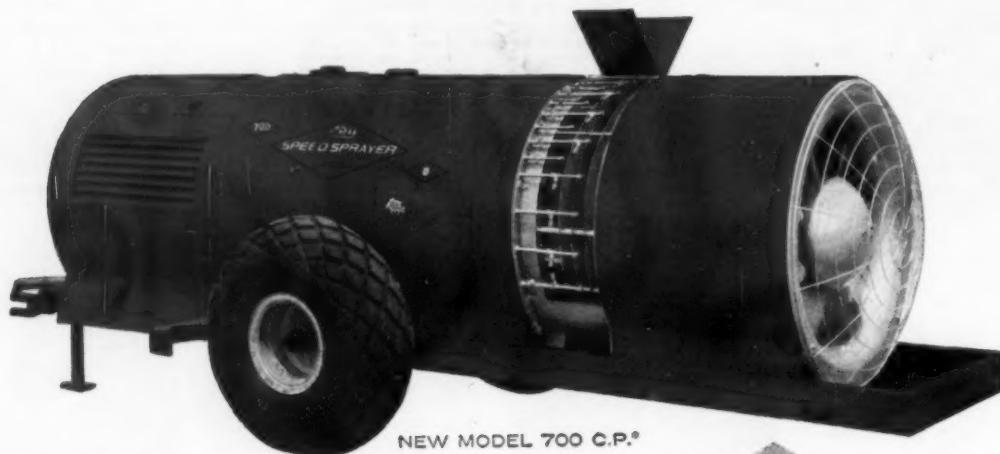


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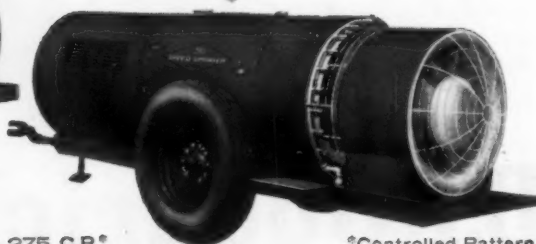
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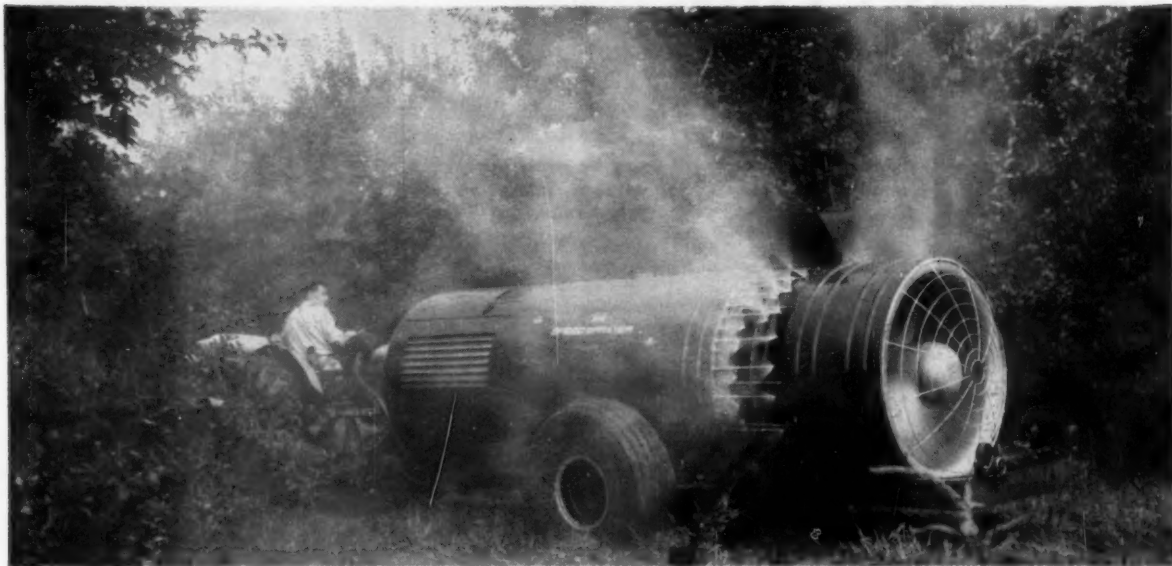


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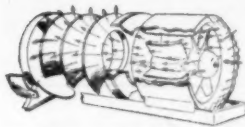
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Citrus

Traveling Orange Trees

TWO California orange trees are back in Brazil completing a round trip that began 88 years ago.

First leg of the trip began in 1870 when an American missionary in the State of Bahia, Brazil, sent 12 Washington navel budlets to the USDA in Washington, D. C.

The second leg occurred in 1873 when Mrs. Luther Tibbets, Riverside, requested and received two trees budded from the Brazilian imports. From these came the navel orange industry of California and perhaps that of the world.

The final leg came last year as two budlets from Riverside's carefully tended parent navel orange tree were passed through quarantine and shipped by air to Brazil.

More Citrus Fruit

THE 1958-59 orange crop, including tangerines, is expected to total 129 million boxes, according to predictions based on January 1 conditions. This figure would be 16% above last year and 4% above average. The upcoming grapefruit crop, at 42.5 million boxes, is 7% above last year, but 6% less than average. The California lemon crop, now estimated at 15 million boxes, is 11% less than last year, but 13% above average.

Nuts

Interest in Hickories

THE 1958 Pennsylvania Hickory Nut Contest brought to light 10 or more seedlings good enough to be considered for future status as varieties for Pennsylvania and areas having a comparable climate. This is the opinion of Prof. J. C. McDaniel, department of horticulture, University of Illinois, a contest judge.

Despite the fact that the state had a short hickory crop last year, the contest, the first of its kind to be held in a number of years, closed with 58 counties, more than 75% of the state total, represented by 245 participants contributing a total of 379 entries.

Mrs. Delmont Williams, of Mackeyville, Clinton County, was awarded first prize of \$25 for her entry of shagbarks. Second and third places went to Harry B. Newcomer, Waynesboro, Franklin County, and Mrs. Harry W. Leister, Tylersport,

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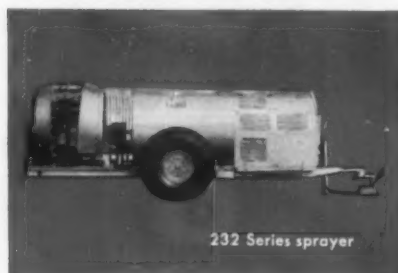
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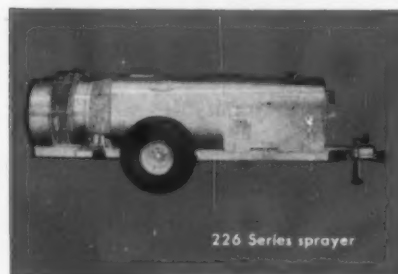
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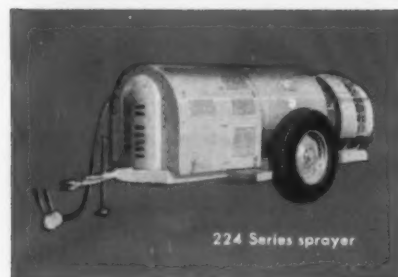
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Montgomery County, respectively.

The contest was sponsored by the Pennsylvania Nut Growers Association in co-operation with the departments of horticulture and agricultural extension, Pennsylvania State University. Purpose of the contest, which may be repeated this year, was aimed at reviving interest in nut growing in the state. The sponsors were also interested in locating seedling hickory trees which bear superior nuts, and in stimulating production.

Berries

Blueberries Transform Swamp

OUT of the brushy, murky swampland of northeastern Bladen County, North Carolina, has risen in the last decade what is probably the largest blueberry planting in the world. The modern, efficient blueberry development of the Cutts brothers employs 1000 persons during June and July, with a sizable crew hired all year.

In 1948 the four Cutts brothers—John, Walter, Ross, and Ernest—already experienced in the blueberry industry in New Jersey, moved into the fertile Bladen area to clear the swampland and grow blueberries for an earlier market. They planted only the best varieties, and since the harvest season in their area is six weeks in advance of the New Jersey season they are able to supply a receptive market for three consecutive months.

Other Bladen farmers have since become interested in the growing of blueberries and have joined the New Jersey Blueberry Growers Co-op.

Blueberry cuttings in the Cutts enterprise are started in fumigated soil and later transplanted to a permanent bed where in three years the plants produce a commercial crop. The young bushes are cut back to get a more uniform top growth.

California-style irrigation is employed. A single mile-long pipe runs through the center of the huge Cutts field and water flows 500 yards in each direction from it between the rows of blueberry bushes.

Only women are employed for harvesting the berries. To further eliminate bruising of the berries as much as possible, old cars with soft springs have been remade into trucks to haul the fruit from the field.

Bladen blueberries, marketed through the New Jersey co-op and the new Carolina Blueberry Growers Co-operative, are shipped to every section of the country a full six weeks in advance of the normal blueberry season.



State REPORTS

WESTERN EDITION

Pollination Needs of Deciduous Tree Fruits

By W. H. GRIGGS

University of California, Davis

ALL commercial almond varieties are self-sterile. A heavy fruit set is desirable with almonds because nuts with small kernels are in greatest demand and there is no fruit-thinning operation to be considered.

Since almond trees usually blossom in February, when the weather may be too cool for great insect activity, more bees and more trees of the pollinizing variety are required than for later blossoming fruits. There should be at least one row of pollinizers for every three of the main variety. At least one strong colony of bees per acre should be supplied, and many growers now feel that two or three colonies per acre are needed.

Nonpareil is by far the most important variety, followed by Texas

therefore, the grower who wants to produce these two varieties must plant at least one other variety as a pollinizer.

The Davey almond was released by University of California and USDA in 1952. One of the strong points in favor of this new variety is that it blooms with Nonpareil and is intercompatible with it. The nuts produced by Davey are of high quality and mature about the same time as Nonpareil.

Apples—Of the principal apple varieties grown in California, Yellow Newtown and Rome Beauty are usually self-fruitful; Golden Delicious and Jonathan are partly self-fruitful, and Gravenstein, Delicious, Yellow Bellflower, Winesap, White Pearmain, and White Astrachan are self-unfruitful.

Gravenstein is early-blooming, Rome Beauty late-blooming, and the others bloom between.

Gravenstein and Winesap produce mostly nonviable pollen and are, consequently, poor cross-pollinizers. Golden Delicious, Jonathan, Deli-

cious, Yellow Bellflower, White Pearmain, and White Astrachan serve as good pollinizers for each other and are also satisfactory pollinizers for Gravenstein and Winesap. Yellow Newtown is a good pollinizer for the midseason-blooming varieties, and Rome Beauty serves as a good pollinizer for the later-blooming ones.

Apricots—All of the principal apricot varieties in California (Blenheim, Royal, Moorpark, Hemskirk, and Tilton) are self-fruitful. The Riland and Perfection varieties, however, are both self-incompatible.

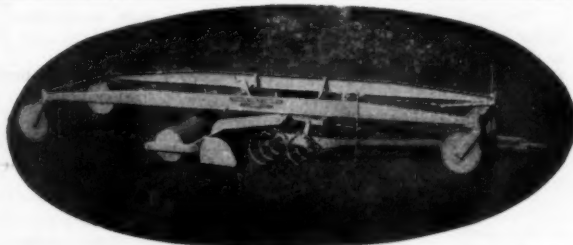
Sweet Cherries—All sweet cherry varieties are self-unfruitful. Of the principal varieties grown in California, Bing, Napoleon (Royal Ann), and Lambert are intercompatible. Black Tartarian is usually interplanted with these varieties to furnish cross-pollination, and a few growers use Black Republican for this purpose. Chapman is being removed because it has poor quality and blooms too early to serve as a pollinizer for the main varieties.

Pollinizers with good marketable

This article pertains particularly to pollination of deciduous fruit and nut varieties in California; however, similar pollination requirements of tree fruits exist in other western areas and the information presented here should serve as excellent reference material.—Ed.

(Mission), Ne Plus Ultra, Drake, IXL, Peerless, and Jordanolo. Jordanolo and Ne Plus Ultra are early blossoming; Peerless, IXL, and Nonpareil are midseason; and Texas and Drake are late.

The blossoming periods of the early and late varieties usually do not overlap sufficiently to insure adequate cross pollination, and Jordanolo often blooms too early for satisfactory pollination with Nonpareil. Unfortunately IXL and Nonpareil are interincompatible, and,



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fruit are needed. Van, a relatively new variety from British Columbia, shows promise of being such a variety. Other new varieties are being tested.

Peaches and Nectarines — With the exception of J. H. Hale, all the principal California varieties of peaches, both clingstone and free-stone, and nectarines are self-fruitful. J. H. Hale produces nonviable pollen and requires cross-pollination. Elberta, as well as many of the other varieties, will serve as satisfactory pollinizers for it.

Pears — The Bartlett is by far the most important pear variety in California. This variety, though nearly self-sterile, has been shown to be self-fruitful in most California orchards because of the production of parthenocarpic fruit.

Many more Bartlett orchards are grown in solid blocks without the benefit of cross-pollination than are interplanted with pollinizing varieties, and few growers provide bees during the blooming period. Controlled pollination experiments have consistently shown, however, that fruit sets are increased with cross-pollination. In many orchards an increased fruit set might necessitate hand thinning in order to obtain proper size.

In orchards where cross-pollination is desirable, Winter Nelis, Hardy, Bosc, d'Anjou, or Comice will serve as pollinizers. The Hardy and Comice varieties are also self-fruitful and tend to overbear and develop a biennial bearing habit when interplanted with other varieties. Winter Nelis is self-unfruitful and Bosc and d'Anjou are only partly self-fruitful. These varieties are usually interplanted with Bartlett, which normally serves as a satisfactory pollinizer for all other varieties grown in the state except Seckel. After our mildest winters, Winter Nelis may bloom too early for adequate cross-pollination with most of the other varieties.

Japanese Plums — Most of the Japanese plums are self-unfruitful. Beauty, Santa Rosa, and Red Rosa (Late Santa Rosa) are partly self-fruitful, but do not give consistently satisfactory crops with no provision for cross-pollination. Wickson, Santa Rosa, Red Rosa, and Beauty have proved to be good pollinizers for most other varieties.

Red Rosa is a bud sport of Santa Rosa and may, therefore, be expected to behave the same as the parent variety in regard to pollination. El Dorado and Kelsey are poor pollinizers, and Duarte and Burbank are only fair. Combinations of these varieties should be avoided unless one of the better pollinizers is included.

Six new Japanese plum varieties

AMERICAN FRUIT GROWER



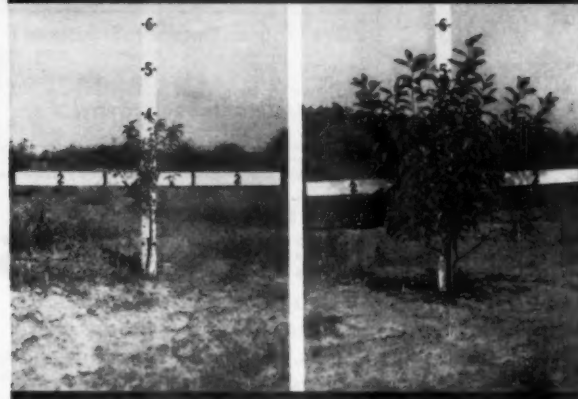
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2. Control nematodes with Dow soil fumigants

Nematodes are among the most serious economic threats to the fruit grower. They can cut the production of strawberry plants by one half. They can also slow the development of young fruit trees almost to a standstill. And they are reported to cause the devastating "spreading decline" which strikes citrus groves. From Dow, you can get scientifically tailored fumigants for every nematode problem. Before planting a bed, orchard or grove, ask your Dow dealer to help you select the right fumigant to control these costly, crippling soil pests.



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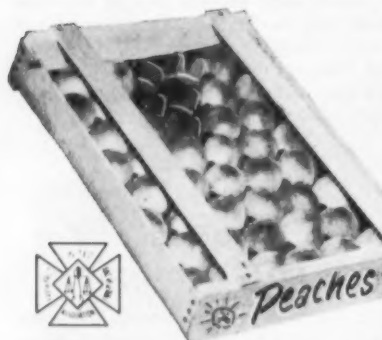
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have been released by the University of California and USDA. Of these, Burmosa, Laroda, Queen Ann, and Redheart are self-unfruitful.

Although Burmosa gives good sets with pollen of Laroda and Nubiana, as well as with that of older varieties such as Santa Rosa, Wickson, and Beauty, it may often bloom too early for satisfactory cross-pollination with these varieties.

Fortunately, Mariposa, an older variety, blossoms as early as Burmosa and they both give fairly good sets when used as pollinizers for each other. Laroda has given good fruit sets with pollen of Nubiana, Queen Ann, Santa Rosa, and Beauty. Queen Ann gives good sets when pollinated by Redheart, Redroy, Laroda, Santa Rosa, and Red Rosa. Varieties which have proved to be good pollinizers for Redheart are Redroy, Nubiana, Laroda, Santa Rosa, Wickson, Beauty, and Red Rosa.

Nubiana is partly self-fruitful but will set better if interplanted with Laroda, Redroy, Queen Ann, or Redheart, as well as with the older varieties, Santa Rosa and Wickson.

Redroy is self-fruitful or nearly so, but will give better fruit sets when pollinated with Redheart, Queen Ann, Nubiana, or with Santa Rosa and Beauty.

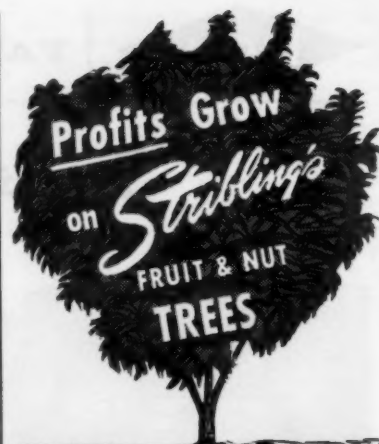
A few early-blooming European plums such as Tragedy may serve as fair to poor pollinizers for Japanese plums, but in general, European plums are not effective pollinizers for Japanese varieties.

European Plums—President and Tragedy are the two principal European plums grown in California for the fresh fruit market. They are both self-unfruitful. Since Tragedy blooms around a week before President in most years, this combination is not very good for cross-pollination. Earliana, Clyman, Grand Duke, Diamond and Jefferson are better pollinizers for Tragedy, while Grand Duke, Diamond, Imperial Epineuse, Sugar, French, Giant, Robe de Sergeant, and Burton are good pollinizers for President.

The principal varieties for drying into prunes are French, Imperial Epineuse, Sugar, Robe de Sergeant, and Burton. Of these, French and Sugar are self-fruitful, but bees are required to give heavy sets from self-pollination. Imperial Epineuse, Robe de Sergeant, and Burton may be satisfactorily pollinated with either French or Sugar.

There are apparently no cross-incompatible European plum varieties among those grown commercially in California. Japanese plums are not effective pollinizers for European varieties.

THE END.



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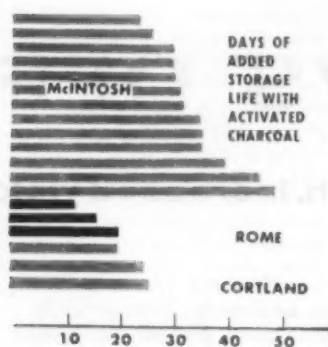


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Grapes

He Specializes

THE Concord grape grower has been rather slow to follow the trend toward specialization and expanded acreage so evident in the production of some other fruit and vegetable crops. An exception is John Archer, North East, Pa., who owns and operates a 225-acre farm, all of it in Concord grapes.

Starting in 1940 with 60 acres in grapes, peaches, prunes, and cherries, Archer had several years' experience with diversified fruit growing before he decided to specialize on grapes. Once the decision was made, land in other fruits and woodland was cleared and set to grapes, and four smaller farms were planted as they were acquired in succeeding years. He believes that three factors were of major importance in the success of his venture:

Good land. Good, open land, even at top prices, was preferred to poor land in bearing vineyard. Soil types on all of the acreage are the lighter and more easily-worked gravelly or sandy loams.

Considerable savings on taxes and maintenance have been realized by purchasing land without buildings or selling the buildings as soon as possible. The only building retained is one large enough to house equipment and supplies.

Good help. At present Archer employs only one man on a year-round basis, but he must be capable of assuming responsibility and making important decisions. Eight men do the pruning on an acre basis, with a liberal bonus if the crop is good. Part-time help is employed for special jobs during the growing season.

Harvesting is done on a custom basis and is paid for by the crate delivered to the processor. The labor contractor assumes all responsibility for social security, compensation, recruiting and cartage of help. Archer is responsible only for distributing empty crates in the vineyard, picking up the full ones, and delivering them to the processor.

Machinery. Some growers with much smaller acreage own similar equipment, but Archer must have more tractor power and hand tools. His investment in equipment is about \$60 per acre. He avoids costly repair bills and time-losing breakdowns by frequently trading for new equipment. Savings are also made on large-quantity purchases of fertilizer and supplies.

Since he has planted 100 of his 225 acres, Archer has had consider-

able experience in vineyard layout and bringing vines into bearing as soon as possible. Long rows are important for economical trellis maintenance and the efficient use of land as well as men and equipment, but there are difficulties at harvest if the rows are too long without a break.



Half-mile-long rows of grapes on Archer farm.

He has found that three cross-alleyways in a half mile are adequate.

Only the best grade of one-year nursery roots are set on the Archer farm. Light pruning and several band applications of nitrogen during the first two years have been found to be important for early production of a full crop.

New practices. Archer is constantly on the lookout for methods to improve his operation. He visits and talks with growers in other grape-producing areas and keeps in close touch with results of research on Concord grapes.

As long as the small diversified grower can produce adequate quantities of Concord grapes at a profit, the bulk of production will probably remain in his hands. However, if the squeeze between higher production costs and lower income becomes tighter, more of it will pass to specialists like John Archer. — H. K. Fleming, Pennsylvania State U.

Stone Fruits

Cherries on 'Remodeled' Land

THE peninsula which extends into Grand Traverse Bay of northwest Michigan is an area of great scenic beauty. However, it is much better known for its cherry production than for its scenic value.

It was to this area that Ozzie Herkner, Jr., a machinery salesman, brought his family and settled on a cherry fruit farm 15 years ago. The 73-acre farm with 15 acres of bearing cherry trees was well located, with excellent air drainage and suitable topography, for the most part, for fruit growing. The farm had some rough, non-tillable land. Some of the orchard areas were seriously eroded.

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Amazing "SURE-SHOT" Miticide

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duces residue problems of late season sprays. What's more, Genite 923 is virtually non-toxic to bees and other useful insects when used as directed. It kills mites—and mites only!

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GENERAL CHEMICAL DIVISION

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Read what John Archer, owner of
225 acre vineyard at North East, Pa.,
says about **AMCO**

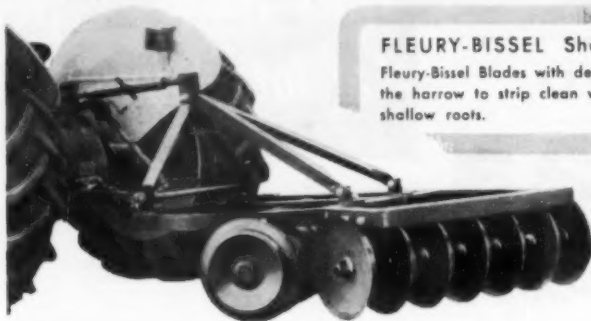
ORCHARD HARROWS



"We have been using an AMCO disc for maintaining our vineyard. This flange type disc does a good job of discing in cover crops and controlling weed growth. The flange type blades control the working depth of the disc.

"Roots of a grapevine are pretty close to the surface and actually run from row to row. In our maintenance work, we do not want to cut any more of these roots than is absolutely necessary. Still we must control weeds and disc in cover crops. The weight of your disc and the angle at which it is set does this job remarkably well with practically no damage to roots.

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The first year's cherry crop yielded less than a ton per acre.

From this small beginning the Herkner farm has grown to 150 acres, of which 140 acres are now planted to fruit. Fruit production, and especially the production of cherries, faces keen competition. Meeting this competition on a profitable basis has been the challenge on the Herkner farm. Better utilization of available labor, machinery, and land are the keys to the farm plan.

Modern tractors, tillage equipment, and air-blast sprayers make it possible to care for more acreage per man than was true a few years ago. Cherries, which grow well in this area, afford the best opportunity for expansion on an intensified production basis.

A newly planted orchard offers perhaps one of the best illustrations of the care that goes into the establishment of a new orchard for future



Herkner (left) and Blue Cross representative discuss insurance benefits for migrant hands.

years of profitable production. The most suitable location on the farm, from the standpoint of elevation and air drainage, was found in the 27 acres of rough pasture land.

Previous experience on this farm at "remodeling" land awakened Herkner's interest in this non-usable portion of the farm. With the advice of the county soil conservation district technician, arrangements were made with a local bulldozer operator to push the hills into the valleys in this area. The test of when the land had been sufficiently remodeled was determined by pulling a loaded sprayer over the steepest portions of the slope with a wheel tractor.

This radical procedure was questioned by many growers who felt the trees would not grow in the raw sub-soil which, in some cases, was exposed for a depth of 12 feet. The first year's growth, however, proved satisfactory.

The opened or remodeled area was quickly planted to fertilized cover crops as a means of stabilizing or preventing erosion. Tree rows in which the top soil was undisturbed were fumigated for the control of nematodes. The tree growth at the end of

New CONNELL RED "The Choice Apple"

Unexcelled for flavor, color, production, storage and hardness. A prominent Mid-West orchardist says "Connell Red stores with Winesap and has the flavor and texture of Delicious".

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Dieldrin is easy to use. Spray dieldrin during the pre-bloom or post-bloom periods. Its long-lasting action kills plum curculio many days after applica-

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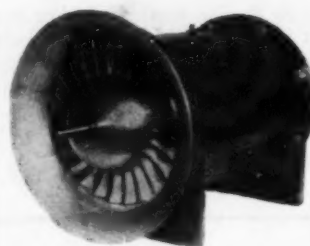


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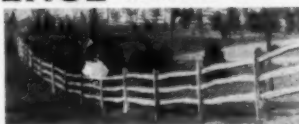
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the first growing season from the fumigated areas was much superior to the check area with no fumigation.

The planting plan on this area also is somewhat unique. Two rows of sweet cherries are alternated with six rows of red tart cherries. The tall growing sweet varieties become wind-breaks for the tart cherries, which are quite subject to wind bruising. The early maturing sweet cherry rows also afford a work space for the harvest of the later maturing tart varieties.

Herkner attaches much value to the use of barnyard manure around trees. This is usually supplemented with commercial fertilizer. Occasionally, only nitrogen types of fertilizer are used, but more often a complete analysis fertilizer is used.

The guide which determines the amount and kinds of fertilizer is the growth or response of the tree. The slow growing trees are often marked with a paint brush. These receive special care and fertilization in an effort to bring them out of their retarded condition. Short but sturdy annual growth is the kind that Herkner is looking for in mature bearing fruit trees.

Sixty acres of fruit orchards on this farm are maintained in a sod. Extra fertilizer is applied for the sod. At tree-setting time, a starter fertilizer high in potassium is used in a solution around each tree. Annual production has been good under this system. Of course, there have been disaster years of frost and drought.

While the farm is geared to utilize the labor of Herkner and his son-in-law, large numbers of harvest hands are sometimes required. The labor problem has been largely solved by a good working relationship with migrant workers. A total of 31 family housing units have been constructed as a camp for migrants. About 125 people can be accommodated. Excellent sanitary and laundry facilities are provided. The camp is supervised by one migrant worker.

While operating a 150-acre fruit farm is a full-time responsibility, Herkner does find time to look toward the marketing problems of the red tart cherry industry. The constantly expanding production of this crop necessitates expanding the marketing program. Locally, he aided in the organization of Peninsula Fruit Exchange and became the president. As a member of National Red Cherry Institute and a past member of Michigan Cherry Commission, he has consistently advocated promotional and marketing activities. Efficient cherry production and strong support for expanded markets have been the key-notes in the Herkner farm operation.—Clarence C. Mullett, Dist. Hort. Ext. Agent, Traverse City, Mich.



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mildew and scab with
GLYODIN and Sulfur

Early in the season the ideal control for apple scab and mildew is a mixture of CRAG Glyodin and sulfur. Many growers have used this economical combination successfully. Results show that a reduced dosage of sulfur, used with Glyodin, lowers the risk of sulfur scald and the combination provides superior scab and mildew control.

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GLYODIN pays many ways in both early and cover sprays. Glyodin controls summer diseases. It also sup-

presses mites, so you may save the cost of special mite sprays. And some insecticides are more effective with Glyodin than with other fungicides. This extra benefit of Glyodin will improve the work of the insecticide in controlling codling moth, curculio, mites, red-banded leaf roller and rosy and green aphids, all at no extra cost. You don't need a separate spreader-sticker.

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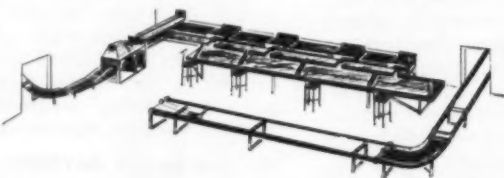
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Spray Thinning of Peaches

THE problem with spray thinning of peaches is quite different from that with apples. Peaches bloom 10 days to two weeks before apples. Hence in sections where late spring frosts are common, the peach crop is in jeopardy for a longer period of time. The peach has a different fruiting habit from that of the apple, and experience has shown that response to the same thinning chemical is often quite different.

On apples, a full bloom spray of Elgetol, a common dinitro compound used for thinning, results in excellent thinning whereas similar timing of the same spray on peaches is too late to be effective. Moreover, the peach is a single-seeded fruit, and this is believed by many to be responsible for the variability in peach thinning in contrast to spray thinning of apples where a many-seeded fruit is involved.

Initial experiments on spray thinning of peaches involved the dinitro

PEACH PRUNING CONFERENCE

The annual Midwestern Peach Pruning Conference which has been held for over 12 years at the Frank Street Orchards, Henderson, Ky., on the third Friday of March will take place this year on the fourth Friday, March 27. Last year 140 growers represented 12 states; this year 14 states are expected to be represented. This is your invitation! — W. W. Magill, Secy.-Treas., Kentucky State Horticultural Society, Lexington.

compounds applied during the blossoming period. It was soon learned that these chemicals had to be sprayed just *ahead* of full bloom—that sprays applied at full bloom or later were ineffective. Commercial application of dinitro compounds was gradually developed in the Pacific Northwest.

Peach growers east of the Rocky Mountains, however, have been obliged to deal with a frost problem well after the blossoming period, and for this reason have never seriously considered the dinitro compounds. Research in the Midwest and East for the past 10 years has been directed towards the development of chemicals which would thin peaches when applied after the blossoming period, or when the frost hazard was largely over.

The first of these chemicals was naphthaleneacetic acid (NAA). This compound was, and still is, a standard in apple thinning, so it was inevitably tried on peaches with applications ranging up to 48 days after bloom. While some success has been reported with NAA sprays, generally the compound has produced too much variability in thinning, and application has been

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"TRITHION"® stopped mites all season"

Says: Fred Vollenweider, Seymour, Missouri

One of Missouri's largest growers of high quality apples, Mr. Vollenweider continues: "I applied TRITHION and two other miticides around June 1 last year. About a month later I checked each plot for mites. I had to put on another application of each of the other miticides because mites were beginning to build up. In the TRITHION plot, the trees remained free of mites the entire season. I had good results with TRITHION and plan to use more of it in 1959."

TRITHION is a new, long-residual miticide-insecticide developed by Stauffer. It has proved especially effective against mites, aphids and scales, as well as codling moth, apple maggot and other fruit insects.

TRITHION is economical because fewer applications are required. It is less hazardous to apply than some other organic insecticides, and is compatible with most other pesticides. In apple spray programs, it is particularly effective with oil in the delayed dormant spray, and for use as a miticide-insecticide in mid and late summer sprays.

TRITHION is available in these formulations: 4 Flowable, an aqueous emulsion containing 4 pounds of TRITHION per gallon; TRITHION 25-W, wettable powder; and dust formulations.

TRITHION is also recommended for use on many other crops, including peaches,

cherries, grapes, plums, pears, citrus and strawberries. Ask your Stauffer dealer for full details. Write for free apple spray chart.

Stauffer Chemical Company, 380 Madison Avenue, New York 17, New York. Sales and service offices throughout the country.

*TRITHION is Stauffer Chemical Company's trade-mark (registered in principal countries) for O,O-diethyl S-p-chlorophenyl thiomethyl phosphorodithioate, an insecticide-miticide.

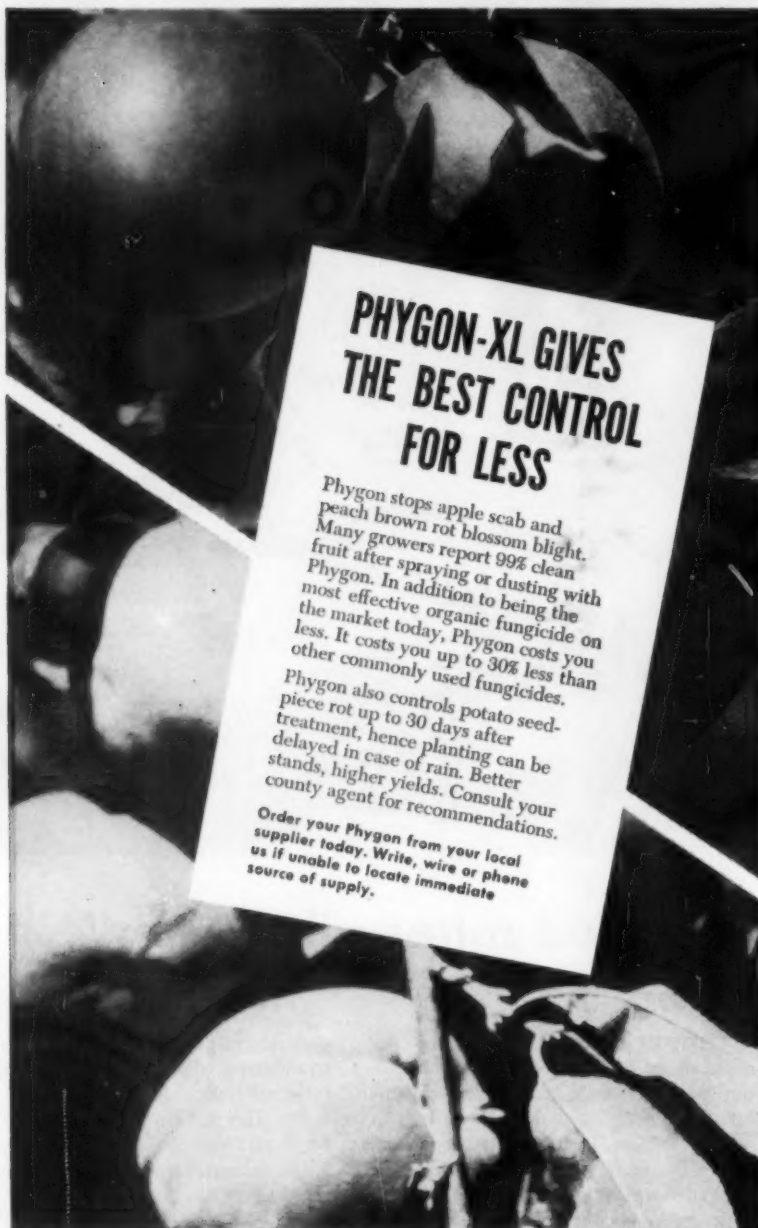
Research, service and products of highest quality have made Stauffer one of America's largest specialists in farm chemicals. Look for and buy Stauffer brand INSECTICIDES, FUNGICIDES, WEED KILLERS, MITICIDES, SEED PROTECTANTS, FUMIGANTS, GROWTH REGULATORS, GRAIN PROTECTANTS, DEFOLIANTS.



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FUNGICIDE

MOST EFFECTIVE, LOW-COST CONTROL!



PHYGON-XL GIVES THE BEST CONTROL FOR LESS

Phygion stops apple scab and peach brown rot blossom blight. Many growers report 99% clean fruit after spraying or dusting with Phygion. In addition to being the most effective organic fungicide on the market today, Phygion costs you less. It costs you up to 30% less than other commonly used fungicides.

Phygion also controls potato seed-piece rot up to 30 days after treatment, hence planting can be delayed in case of rain. Better stands, higher yields. Consult your county agent for recommendations.

Order your Phygion from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.



United States Rubber

Naugatuck Chemical Division

353-H Elm Street, Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygion, Aramite, Synklor, MH, Alanap, Duraset.

accompanied by too much foliage injury. At the present time spray thinning with NAA on peaches is still being tried only in the upper Midwest.

In 1953 USDA reported thinning of peaches with late sprays of isopropyl N-3-chlorophenyl carbamate (chloro IPC). Following this report, chloro IPC and several milder carbamates were intensively studied in several states for three years. Here again, while some good results were obtained, results in most states indicated that chloro IPC sprays left a very uneven distribution of the crop on the trees, often resulted in continued fruit drop throughout the season, and in some cases caused malformation of fruits by harvesttime. By now most research workers, except in Virginia and Ontario, have abandoned work with chloro IPC.

At the present time the only compound receiving widespread attention east of the Rockies is naphthyl phthalamic acid (NPA). First discovered by the New York Experiment Station, NPA has been found to be an effective peach thinner, and to date six years of research have been conducted by the New York station on this chemical, and as much as four years by other experiment stations.

Concentrations of 100 to 200 ppm (parts per million) have thinned effectively on light-setting varieties such as Elberta, while 200 to 400 ppm concentrations have been required on varieties, such as Redhaven, which normally set heavily. The timing range for applying the spray is three to five days after full bloom.

Work in Indiana and New York indicates that NPA should not be applied at low temperatures (below about 50° F.), or just ahead of an incoming cold air mass. If low temperatures prevail, it would be better to wait for higher temperatures, or not to spray at all, as drastic overthinning has resulted from low temperature applications.

Also the matter of tree age appears to be of importance according to results in some states. Until more is known on this point, trees five years old or younger should not be sprayed with NPA.

Gallage used per tree is important with NPA sprays. In several instances in 1957, 200 ppm of NPA, applied two to four days after full bloom, resulted in excellent thinning when applied with hand guns at the rate of 6 gallons per tree. Yet the same concentration failed to thin when applied with an air-blast sprayer at half or less the above gallage. If air-blast equipment is

Big loads, long hours—Chevy trucks keep going and going and going!



Model 6503 equipped with special stock and grain body.

That's the reason you see so many Chevies on farms all across the country. When getting to market on time affects your profit, it's pretty clear you want a truck you can trust.

From spring through fall there's scarcely a spare minute for breakdowns on the typical farm truck schedule. Your truck's got to keep going and there're no two ways about it.

That alone is likely the biggest single reason so many farm owners visit Chevy dealers when the time comes to buy. You can go for Chevrolet's good looks and be extra satisfied with its gas-saving economy. But best of all you'll like the feeling of confidence that the Chevy you buy—whether it's a pickup or a big heavy-duty job—is going to stay in there pitching when the going gets rough.

Let your Chevrolet dealer supply the specs and all the specific advantages. For example, he's got a dozen different pickups alone for you to size up to your job. See him first chance you get. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

NO JOB'S TOO TOUGH FOR A CHEVROLET TRUCK!



to be used at reduced gallonages, the concentration of NPA in the spray tank should be increased accordingly to compensate for the lower volume per tree.

It is obvious that the timing of three to five days after full bloom does not get away from the frost hazard in many eastern and mid-western peach orchards. Yet NPA does afford the opportunity to evaluate fruit set before spraying, and more latitude in timing is available than is the case with dinitro compounds before full bloom.

Perhaps in no other area of peach research is grower trial needed more than in this matter of spray thinning. Planned trials by commercial growers, using the best advice of their local research and extension personnel, lead to the most rapid development of commercial spray thinning.—*Arthur H. Thompson, University of Maryland, College Park.*

Prunes Saved by a Light

FFLASHING lights on frosty mornings in the orchard warn Don Lantz, manager of Polak apricot and prune orchards in California's Santa

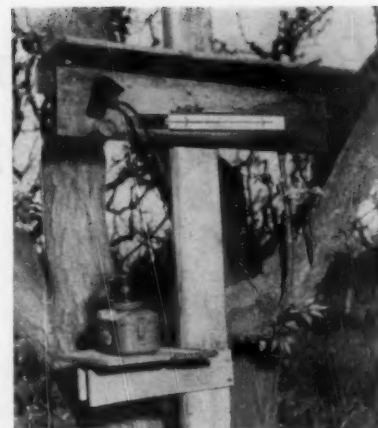
Clara Valley, where frost danger lies and where to light his heaters first to avoid frost damage.

Scattered throughout the orchards are 10 battery-powered, flashing, road-warning lights to which are attached small GE H5-C3 thermostats. One guide light is located at the coldest spot on the ranch, and while this light is flashing the heaters are kept lighted. When it stops, heaters are shut off about 15 minutes to a half hour afterwards to allow time for a safety factor.

Lantz uses 32° as his temperature indicator because this gives him time to find the trouble spot, light the burners, and allow for heat before the damage of lower temperatures can occur. Most damage occurs from 29° downward.

The unit is made by removing the switch on the flasher and substituting the rubber-covered wire from the thermostat, thus making the thermostat the switch. The stop-pin for the knob on the face of the thermostat's dial is removed and the knob moved below this mark to where tests show the 32° mark to be located. This is then marked with paint.

The units are placed on stands under individual trees so that the trees



Light mounted near orchard thermometer goes on when the temperature drops down to 32° F.

will afford protection to the stand during cultivation, irrigation, or harvesting. A thermometer is mounted on the stands along with the unit, and the flasher is placed on a small stand below the thermometer and thermostat in order to be more readily seen. All openings and connections are weather-proofed with solder and sealer, usually plastic.

Cost of the assembled unit is usually between \$6 and \$8.—*Roy Hitchcock.*



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in every BUSHEL
when you plant VAN WELL
Grower-Approved Varieties**

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P. O. Box 858
Wenatchee, Washington
Gentlemen:

The Red King trees that we got from you last year did the best of any apple trees that we have ever planted. They all put on from 3½ to 4½ feet of new growth and have also grown fine stocky trunks.

E. W. Douglas
Bald Mountain Orchard Co.
Ararat, Virginia

*Propagated and Sold Only by:

Van Well Nursery

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WENATCHEE, WASHINGTON



RED KING—Brauns Delicious*
U. S. Plant Patent No. 1411
Red King trees of second, third and fourth generations are now producing in most fruit growing areas of the nation and many foreign countries. Red King continues to show the same remarkable color characteristics found on the original sport limb, making it the champion of the new super sports.

BARKLEY RED ROME*
U. S. Plant Patent No. 1479
A mutation of Rome Beauty, the Barkley is a new and different Red Rome. The fruit of the Barkley Red Rome has consistently shown better color and size than other Red Romes in the same growing area. Trees of both the second and third generation continue to show remarkable size and color characteristics.

VAN WELL RED WINESAP*
The Van Well Red Winesap colors to a beautiful dark red, has exceptionally good keeping quality and is a prolific bearer of large sized apples—a definite improvement over the ordinary variety.

FREE COLOR CATALOG . . .
Write today for our free color catalog and planting guide which describes these grower-approved varieties as well as our complete line of peaches, pears, prunes, plums, apricots, cherries; and other apple trees on standard, semi-dwarf and dwarf rootstocks.

Are you ready for resistant insects?

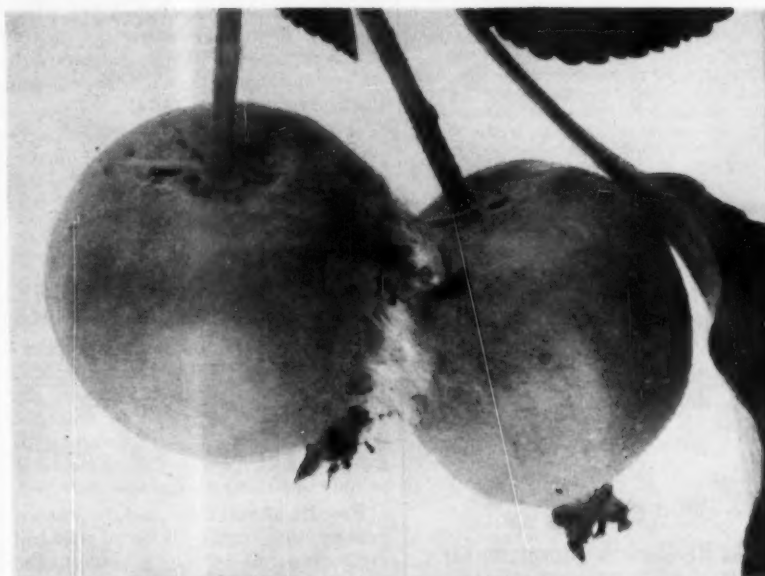
If you've got 'em, are you using the right chemical?

If you haven't, would you know what to do if they come?

DDT-resistant codling moth is now widespread; DDD-resistant red-banded leaf roller is a more recent development, but continues to spread rapidly. If neither of these resistant pests has raided your orchard, you're lucky... but if either turns up in your orchard this year, would you know what to do?

Where pests have developed resistance, growers have been quick to switch to a powerful phosphate insecticide... like malathion. Malathion-based schedules, from petal fall through cover sprays, give consistently fast, thorough kills when either insect strikes.

In addition to controlling resistant insects, malathion also controls aphids and other summer pests. Many up-state New York apple growers (an area where resistant red-banded is a serious problem) are using malathion-DDD combinations (of course, with the addition of a fungicide when



Webbing of first brood Red-banded leaf roller. Malathion plus DDD will control both broods of this pest.
Photos: Courtesy N. Y. State Agr. Exp. Station

needed) as the backbone of their entire schedule.

Offers safety in use

Unlike some of the other phosphates, malathion has low toxicity to man and animals and can be handled safely without cumbersome protective clothing or respirator. The USDA calls malathion, "...one of the safest insecticides to handle."

Eliminates late-season residue problem

Again, unlike some of the other phosphates, malathion can be used close to harvest without exceeding residue tolerances. On apples, cherries, and plums, malathion can be used up to

72 hours from harvest. On peaches and apricots up to 7 days. On pears up to 1 day.

Send for free Grower's Handbook; lists malathion's uses, rates, timings, etc. Write: American Cyanamid Company, Agricultural Division, Dept. AF-3, New York 20, New York.



Though DDT-resistant codling moth is now widespread, it's easily controlled with malathion.



What's Wrong with My Trees?

Now when fruit growing costs are so high, no one can afford the extravagance and heavy losses from waiting for poor crops to show up unhealthy trees.

Especially when they're so easy to avoid! Test your soil and prevent nutrient deficiencies before they develop. It's actually fun with the Sudbury Soil Test Kit, makes all your work more interesting. Wouldn't you like as much as double the profit from every tree you own, and over 90% Fancy Grade fruit?

Soil Testing Increases Yield, Raises Quality DO IT YOURSELF

You're in business to make money—you give your orchards the best care you know how. But all your planning, pruning, spraying and painstaking care can't count without the full support of your soil. You can't tell by looking at it what it needs—but you'll know at once with your Sudbury Soil Test Kit!



Easy As Reading A Thermometer NO KNOWLEDGE OF CHEMISTRY NEEDED

This Fruit Growers and Farmers Lifetime Soil Test Kit is so simple anyone can use it—takes only 10 minutes, costs less than 10¢ a test. So reliable that vo-ag schools, ag colleges, nurserymen, and successful farmers everywhere depend on it. No samples to mail, no waiting for reports—you get your answers right away! Shows right amounts of nitrogen, phosphate, and potash, also whether lime is needed and how much. Lifetime welded steel chest, can be used right out in the orchards. Easy instructions show needs of 225 different fruits, vegetables, field crops, etc. Special low price, only \$29.95.

Test Your Soil FREE

Order Right Away, and use your Kit for 10 days. Even those first tests will pay for it 10 times over—showing what your soil needs to avoid a short crop, poor set, inferior quality, lack of color—make your trees more immune to bad weather, insects, disease. If not convinced, return for refund and your tests cost you nothing!

SEND NO MONEY—We'll mail your Kit C.O.D. plus postage, if desired.

FREE

Or send check and we'll prepay, saving you \$1.91 to \$3.55 postal fees and include valuable free book, "Our Land and Its Care."

Easy Payments—If you wish, let the money you save on fertilizer pay for your Kit—same coupon.



Your money back if you don't get bigger yields!

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Send me the Sudbury Soil Test Kit as marked below.

☐ Enclosed is \$29.95. ☐ Send Kit C.O.D.

☐ send Kit postpaid. ☐ \$29.95 plus postage.

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☐ Send on Easy Payment Plan—I'll pay mailman \$4.95 plus postage, then 4 monthly payments of \$6.75 each.

Dealers: Write for Special Offer

Be Sure with A SOIL TEST

An analysis can lead to more profitable use of fertilizer

FRUIT growers throughout the country are relying more and more upon fertilizers for higher yields. A one-third increase of all crop production in the United States is due to the use of fertilizers, point out USDA authorities.

Growers produced 44% more crops in 1952 than the average for the same acreage during the base period of 1935-39. What's more, they did this with 17% less labor. The yield increase is attributed to the use of 274% more fertilizer, along with 84% more power and improved production practices.

Although investments in fertilizers pay a high net return on most farms, growers are still losing millions of dollars each year in wasted fertilizers by failing to test their soil.

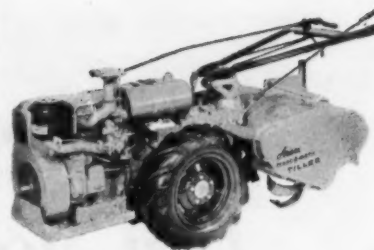
Soil tests show the plant-food needs of the soil and suggest the grade or grades of mixed fertilizer and nitrogen to buy. They indicate proper time and method of application as well as whether lime is needed. Unless the soil pH is 5.5 or 6.5, the greatest efficiency possible will not be realized from the fertilizer application. Soil acidity, alkalinity, or saline conditions also can be detected.

Results of soil tests and the known general response by crops on that soil in the past can serve as a guide to the rate and kind of fertilizing program to follow. Other factors to consider in establishing rates are whether manure or soil-improving crops are used and whether an optimum moisture supply can be maintained. The nutrient requirements of the specific fruit crop to be grown also should be taken into account. The season of the year will affect nutrient availability.

Taking the samples is important in soil testing. A uniform, typical site should be chosen within a single soil area of 5 to 10 acres which is confined to one crop or bounded by a fence or some such line. Samples should be taken in a stratified random design.

For a composite sample, 10 to 20 borings—cores or slices—of equal volume of soil should be mixed thoroughly and 1 pint saved from the mixture for testing. The boring should be obtained by digging a hole with a soil tube, spade, trowel, or auger as deep as the plow-layer and a uniform slice taken of the vertical wall of the hole not more than 1/2-inch thick.

THE END.



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Power . . . non-slip traction . . . dependability . . . easy handling make Ariens Trans-A-Matic Tillers outstanding for value and performance. 9.0 h.p. and 16.5 h.p. models. Write for details today!

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NOW! A low-cost, light weight orchard sprayer that's adaptable to every job!



All-Purpose Pul-Tank Sprayer

Gives outstanding performance on orchards, row crops, livestock and vineyards. Heavy-steel, all-welded tank with powerful agitator action. Large opening, 15 inches square (not a dinky little lid like a fruit jar!) with sturdy lid lock. Hose connections from pump to controls—no pipes to crystallize, rust or break.

200-gal. Pul-Tank with P.T.O.
12 g.p.m., 500 p.s.i. pump. \$475
300-gal. Pul-Tank with P.T.O.
20 g.p.m., 500 p.s.i. pump \$660

Modernize your sprayer with a new pumping unit! Delivers 500 pounds per square inch, yet weighs as little as 18 pounds. Ball bearing construction—patented stainless steel valves.

A-10 pump, 12 g.p.m. \$125
A-20 pump, 24 g.p.m. \$225

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REAR'S FARM SERVICE

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Eugene, Ore.

AMERICAN FRUIT GROWER

WINDFALLS



By HENRY BAILEY STEVENS

A Dare on the Delicious NEVER afraid to try a new idea, our friend Jack Hamilton, of Wenatchee, Wash., reports on the gamble he dared to take last spring in his 400-acre orchard on Lake Chelan.

"The Delicious had burst into a beautiful snowball bloom, and we shuddered at the monumental task of hand thinning. Chemical blossom thinning had proved its value on Winesap, but Delicious are too sensitive. You'd kill all your crop!

"Risky, it's true, but we set to operating our two Speed sprayers day and night for five days and took care to apply the exact amount at just the right time, after the king blossom had set and while the side blooms were in their pink. Result: our 5000 mature full-bearing Delicious (and that includes Reds) set scarcely a side-bloom apple, while the kings survived.

"Our 4000 Winesaps got the same treatment and received a slight hand thinning to break up excessive clusters. The whole hand-thinning job, instead of a ruinous \$35,000, cost less than \$2000. The trees did not have to waste any effort in growing side-bloom fruit, and our Delicious apples sized over 40% 80 and larger per box. Winesaps did almost as well.

"The Delicious harvest had a funny angle: limbs were loaded and roped almost like cherries, with 50 to 70 apples on a 5-foot twig. In order to insure color we literally thinned in picking; in mid-September we took off the high colored outer layers of the festoons, 10 days later another layer, and in 10 days more cleaned up. On hundreds of trees the crop ran to 50 to 60 boxes, and a high percentage graded Extra Fancy, with 75% to full-red color. I'm sure that these are the cheapest grown apples that we've produced in many years.

"We haven't gone to bulk bins or straddle wagons yet at harvest, but have reduced our 50-mile hauling cost by using semi-trailers with 1300-box capacity — roughly 1½ reefer-carloads per truck-cargo."

Address your "Windfalls" contributions to Henry Bailey Stevens, AMERICAN FRUIT GROWER, Willoughby, Ohio.

MARCH, 1959



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Raise Soil Fertility to the High-Profit Level

Good soil fertility can mean the difference between an average fruit crop and an excellent one—between a fair and a really profitable year.

Since much of your crop goes just to pay production costs, a higher yield of better quality fruits from each acre can boost your net income way up. Swift's Specialized Crop Makers contain extra growth elements that actually raise the fertility of your soil—make every acre of land work harder for you.

Swift's Plant Foods are made by the exclusive FLO-FUSION process that chemically-hitches all elements into free-flowing particles. They provide balanced feeding, and elements can't shake out or separate.

Your Swift dealer will be glad to help you plan a soil fertility program using Blenn, Brimm, Vigoro Commercial Grower or Red Steer. Contact your nearest Swift office.



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Swift's GOLD
BEAR brand
pesticides

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WHEN YOU'RE FARMING TO MAKE MONEY, SWIFT'S YOUR FINEST BUY!

GRAVELY
makes tough jobs
EASY!



EASY PAY PLAN 30 tools

UNMATCHED PERFORMANCE!
Rotary Mower attachment mows-mulches the finest lawns or roughest weeds faster, easier, better!
Just one of 30 year-round, job-proved tools. Gravelly, with more power... more performance... more tools, does the jobs others can't!
All-Gear Drive, Power Reverse, Optional Electric Starter. Riding or Steering Sulky.

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State News

100th Anniversary

CELEBRATING 100 years of fruit growing, the Missouri State Horticultural Society looked back to the early days and then charted a course for the next 100 years. At one time Missouri was the leading apple producing state in the country and the abundance of national leaders Missouri calls its own no doubt stems from its fine fruit growing history.

Fruit varieties, on which the fruit industry is built, came in for their share of discussion with the American Pomological Society which met jointly with Missouri to help commemorate the special event.

Featured speaker on both days was Dr. L. P. Batjer, top USDA representative in the Northwest, whose keen insight and friendly humor gave Missouri growers entertainment and knowledge on such topics as apple thinning and new orchard production developments.

But it was Truman Nold, executive-secretary of the growers' own promotional agency, the National Apple Institute, who set the tone for the meeting. His report that apple production is turning upward (see

things are to be brought about, it will be through long term education and not through direct industry action. At present Missouri has an apple tax of 1c per bushel by state law through which up to \$7000 is collected a year. This money is used for limited promotion and to help provide inspection service for individual growers.

Dr. R. A. Schroeder, head, department of horticulture of the University of Missouri, gave a fact-studded



Notable fruit breeders who attended Missouri society's centennial were: Stanley Johnston, South Haven (Mich.) Experiment Station, left, and A. Leon Davis, USDA, Beltsville, Md., center. New president of American Pomological Society is Paul Shepard, superintendent, Mountain Grove (Mo.) Experiment Station, right.

banquet address. Professor T. J. Talbert, well-known in Missouri horticulture, and retired head of the department of horticulture, accepted the Wilder Medal Award at the meeting. Also attending was Dr. A. E. Murneek, now retired, who traveled from Washington State for the meeting.—R.T.M.

Oil Sprays Are Back

THERE is renewed interest in spray oils. This was the opinion expressed by Dr. Ellsworth H. Wheeler, University of Massachusetts, when he addressed the Massachusetts Fruit Growers Association annual meeting this year. The following excerpts are from his talk.

The development of resistance to many organic insecticides in strains of mites and insects has been largely responsible for the return to oil. At present there is no known case of resistance to oil among these pests. Oil kills in a completely different way than do the newer organic insecticides, just as does a fly swatter as compared to DDT. No flies are resistant to a well-aimed swatter.

In the past few years there has been a tendency to drop the oil application altogether in favor of foliage-type miticides. The recent increase in San Jose scale may be one result of this, as some strains of red mite are resistant to several foliage-type miticides.

Actual or possible damage to trees has been a factor leading to a decrease in oil usage. Even with the "superior" type oils, overspraying and abnormally heavy deposits could lead to noticeable injury although it was never so serious as with the old "regular" type oils.

Recognizing the value of oil and the need for a safer type, Dr. P. J. Chapman and associates at New York



Missouri State Hort Society officers for 1959 are (left to right) Don Vollenweider, Seymour, president; Bill Martin, Columbia, secretary; N. Stephenson, Independence, retiring president; Fred Hunt, St. Joseph, 1st vice-president.

AMERICAN FRUIT GROWER, January, 1958) put many veteran apple men on the edge of their seats.

Growers agreed that in order to sell more apples, the price to the consumer must be lower; the spread between grower price and retail price

PIONEER ORCHARDIST DIES

Carl Vollenweider, 84, pioneer Missouri orchardist and founder of C. Vollenweider & Sons, died in Seymour last December. He was the father of Donald Vollenweider, recently elected president of Missouri State Horticultural Society.

must be reduced; they agreed that they need more dealer service men to work with supermarket managers to give apples a fair break; and that more colorful and eye-appealing packages are needed. But if these

AMERICAN FRUIT GROWER

Agricultural Experiment Station, Geneva, have in their recent research determined some "superior" oils. One of these which is on the market this year will help control San Jose scale and red mite. It will be less likely to cause injury to trees and its cost is only slightly higher than that of "regular" oils.

These "superior" oils may be mixed with the fungicides ferbam and neutral coppers. They may be used from dormant through late delayed dormant when two or even three spur leaves are turned back from the fruit buds. A week should elapse between captan (Orthocide and Stauffer Captan) and late oil applications. Other fungicides may be used safely within a day or so after late oil application.

Red mite eggs are more susceptible close to the time of hatching. This is one reason for encouraging delayed dormant applications of oil rather than dormant. However, thorough coverage is much more important than delayed application.

If some or all of the oil is applied at late delayed dormant, BHC (benzene hexachloride) may be included to kill rosy and other aphids.

Hort Man Resigns

THE resignation of A. N. Pratt, long-time secretary-treasurer of Tennessee State Horticultural Society, was accepted at the recent 53rd annual convention. He was relieved in this position by Dr. B. S. Pickett, head of the department of horticulture, University of Tennessee.

Other officers of the society for the coming year are Henry L. Levy, Brownsville, president; J. F. Womble, Greenfield, vice-president, West Tennessee; Blaine Donoho, Portland, vice-president, Middle Tennessee; John I. Morgan, Elizabethton, vice-president, East Tennessee.

An extra day was added to the convention schedule in order to hold an orchard day for machinery demonstration and a progressive pruning clinic for both peaches and apples. Although it was a bitterly cold day, the more than 75 growers who attended were so enthusiastic over the instruction that it was voted later to make the field day part of the annual meeting.

It was planned to hold sectional meetings this year in both Jackson and Knoxville.

Maryland Growers Meet

IF there was anything wrong with the apple market, it didn't show up during the 61st annual meeting of Maryland State Horticultural Society. From the discussions, it is evident that mechanization and greatly changed and improved methods of culture, packing and storage will play

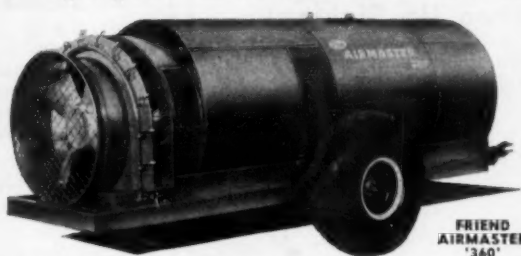
Only FRIEND Sprayers have MICRO-SPRAY



Friend 36" axial flow fan delivers 45,250 cu. ft. of air per minute consistently!



Friend high-pressure AXE pump—40 gpm. at 600 lb. pressure



Let's face it! You, as a fruitgrower, want the best spray coverage for your trees—the most finely divided spray possible that will cling to leaves, bark, and fruit with minimum run-off.

You get it with Friend Micro-Spray. For only Friend combines a high-pressure pump with high air volume—for less runoff, less waste of spray material, and better protection.

See your dealer for details.



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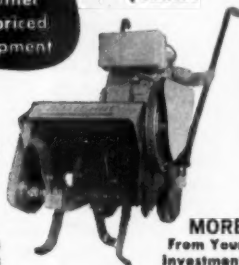
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Has MORE Good Proven Attachments than any other popular-priced power equipment

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Interchangeable Attachments:

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Safe-Speed Eder \$29.50;
Roto-Zephyr Sprayer \$79;
Snow Dens-Thrasher, Self-Propelled, \$79.75;
Roto-Buzz Saw \$44.75;



MORE From Your Investment

BUY ROTO-HOE; one power unit operates many low-cost lawn and garden tools, eases your work, saves you time and money! Operates so easily a girl can guide it! FREE FOLDER gives full information. Write for it and nearest dealer's name today.

ROTO-HOE, Dept. A-53, NEWBURY, OHIO

High-Pressure SPRAY HOSE

Special value—shipped immediately



800 Lbs. Working Pressure

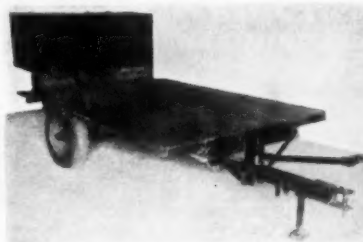
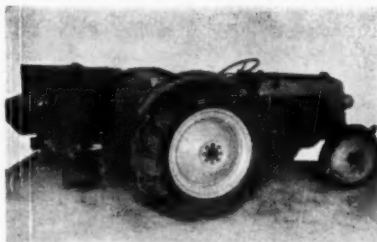
Horticultural hose is new, first-grade, flexible. Resists oils, chemicals, insecticides, any D.D.T. spray. Couplings attached to fit all High-Pressure Sprayers. Shipped C.O.D., plus freight—or postpaid, if payment sent with order. Satisfaction guaranteed—or your money refunded.

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| 25 ft. | \$10.25 | \$11.75 | \$16.25 |
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SKIBBE SEED & FERTILIZER SPREADER, SODUS, MICH.

Reduce Fruit Injury Speed Up Picking . . .

With these 2 great
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1. YAKIMA



2. RK PICKING BAGS



The RK and Yakima picking bags are designed to hold one bushel of fruit and be comfortable on the picker. Both have padded metal top rims, two inch wide heavy web shoulder straps with adjustable slides. Both are made of heavy 12 ounce canvas.

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- ★ IDEAL FOR ORCHARDS
AND GARDENS

WRITE TODAY FOR
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WINPOWER
MFG. CO., NEWTON, IOWA

a big part in the fruit industry's future.

The growers voted to request increase of the state apple tax to 2 cents a bushel to obtain additional promotional and advertising funds. Maryland apple promotion is done mainly through Appalachian Apple Service, a regional growers' organization. The society also planned to join the neighboring states in working out a bargaining set-up between apple growers and processors.

A highlight of the meeting was a report by Dr. A. H. Thompson of the University of Maryland in which he described his work done in conjunction with D. B. Dunlap on the control of York spot or bitter-pit by use of a spray of highly soluble boron applied during bloom.

Just a few months before this meeting, Arthur Lee Towson, the last surviving charter member of the society, died.—A. F. Vierheller, Sec'y, College Park.

Huge Attendance

MORE than 5000 persons attended the 88th annual meeting of Michigan State Horticultural Society held recently in Grand Rapids. Ninety-one commercial exhibitors displayed their products which included tractors, sprayers, an airplane duster, packing house and storage equipment as well as pesticide chemicals, fertilizers, nursery stock, and other equipment and services important to the fruit industry.

The program featured three out-of-state speakers. Prof. W. W. Magill, University of Kentucky, discussed strawberry growing practices; Dr. John W. Tompkins of New York Agricultural Experiment Station, Geneva, presented his findings on the "hill" system of planting strawberries which showed a yield three times greater than for the "matted" row system; and entomologist Dr. Edward H. Glass, also of Geneva, gave information on the new insecticides.

Grower panels played an important part in the three-day program.

At the closing banquet H. D. Hootman, secretary of the society, was given special recognition for his 35 years of faithful service to Michigan State Horticultural Society and to the Michigan fruit industry. Hootman will retire from his position at Michigan State University in July after having completed more than 40 years.

Officers for this year are: William Mueller, Linden, president; Harry Nye, St. Joseph, 1st vice-president; Myron Dowd, Hartford, 2nd vice-president; Lloyd A. Spencer, South Haven, treasurer; A. E. Mitchell, East Lansing, secretary; and H. D. Hootman, East Lansing, assistant secretary.—A. E. Mitchell.



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Spray easily — Spray Thoroughly. Spray and drive your tractor—Save money with **HAMILTON SWIVEL GUNS**



**HAMILTON QUICK ACTION
SHUTOFF VALVE**

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BANGOR, MICH.

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THE QUESTION BOX

Don't be perplexed! Send us your questions—no matter how big or small. A 4-cent stamp will bring you an early reply. Address: The Question Box, AMERICAN FRUIT GROWER, Willoughby, Ohio.

CHEMICAL PEACH THINNING

I would like to know the name of a chemical for thinning peaches so that I can obtain better size next season.—Ohio.

NPA sprayed on peach trees at Ohio Agricultural Experiment Station, Wooster, has outshone all other fruit thinning sprays, reports Dr. R. G. Hill of the department of horticulture at the station. The compound causes fruit to drop prematurely, allowing a limited number of peaches to ripen. It has pared the thinning job in half.

NPA, which is manufactured by Amchem Products, Inc., Ambler, Pa., will be available to growers this coming season. Dr. Hill recommends trying NPA on a very limited basis at first, using it at the rate of from 250 to 275 parts per million.

JUICE EXTRACTORS

Please send me the names of manufacturers of juice extractors.—West Virginia.

We are sending our reader a tear sheet from the July Buyer's Guide issue which lists the names and addresses of nine manufacturers of juice extracting equipment.

RASPBERRY VARIETIES

What new red raspberry varieties should I plant for roadside and market sales, and where can I purchase plants?—New York.

Milton, September, and Amber red raspberries merit particular attention says small fruit specialist George L. Slate, of New York State Agricultural Experiment Station, Geneva. Planting stocks are available from New York State Fruit Testing Co-operative Association, Geneva.

WALNUT BLIGHT CONTROL

What spray is recommended for walnut blight in my area (Ventura County)?—California.

Copper A at 2 pounds per 100 gallons plus a spreader applied at 5% full bloom is suggested as a control measure. Another spray at 20 to 40% full bloom and a third about three to four weeks later have materially increased blight control, according to your farm advisor.

CALENDAR OF COMING MEETINGS & EXHIBITS

Mar. 4—Dwarf Fruit Tree Association meeting, Hill Top Orchards, Hartford, Mich.

Mar. 11-12—Symposium on Peach and Apple Thinning, New Jersey Agricultural Experiment Station, New Brunswick.—Norman F. Childers, Dept. of Hort., Rutgers U., New Brunswick.

Mar. 12-14—Watermelon Growers and Distributors Association meeting, Robert Meyer Hotel, Jacksonville, Fla.—J. J. Parrish, Sec'y-Treas., Adel, Ga.

Mar. 27—Midwestern Peach Pruning annual conference, Frank Street's Cardinal Farms Orchard, Henderson, Ky.

Mar. 28—Peach Day, University of California, Davis.

Mar. 31—Cherry Producers Marketing Cooperative, Inc., annual meeting, Pantlind Hotel, Grand Rapids, Mich.—Berkley I. Freeman, Sec'y-Mgr., 345 State St., S. E., Grand Rapids.

Apr. 9-11—California Grape and Tree Fruit League, Hotel Mark Hopkins, San Francisco, Calif.—Harold Angier, Gen. Mgr., 717 Market St., San Francisco.

Apr. 23-May 3—44th annual National Orange Show, San Bernardino, Calif.

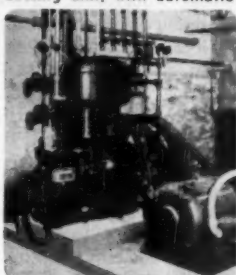
Apr. 30-May 1—Shenandoah Apple Blossom 32nd Annual Festival, Winchester, Va.—F. L. Largent, Jr., president, Winchester.

MARCH, 1959

BUTLER BROTHERS EXPAND

Butler Bros., Winchester, Va. recently converted a basement area, in one of the farm buildings, to a cold storage warehouse for apples.

A Frick 6 by 6 heavy-duty compressor and air cooling unit, with automatic defrosting controls, were



6x6 Ammonia Compressor at Butler Bros.

added to the present Frick 5 by 5 compressor, to handle the additional storage area of 6,950 sq. ft.

If you need any type of commercial refrigeration—cold air, cold water, cold storage, ice for shipping, humidity control, or low temperatures for quick freezing—Frick engineers will help you design a system to meet your needs.

Call your nearest Frick Branch, Distributor, or write to



New Apple Storage Room at Butler Bros.

DEPENDABLE REFRIGERATION SINCE 1887
FRICK CO.
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TREE PAINT

Protect your valuable trees with this amazing new paint. Promotes fast healing of all tree wounds. 1 Gal. Can \$5.50 delivered.

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ALL LEADING VARIETIES AVAILABLE

Apple, Peach, Pear, Apricot,
Cherry, Plum, Prune, etc.

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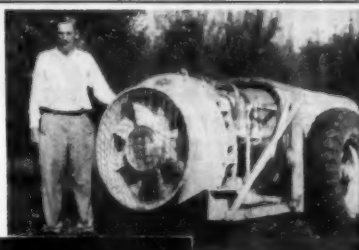
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"Any way you look at it, it's \$2,000 saved. I put my unit together in about 8 hours. It's equipment that has proven itself for years as has the Bes-Spray air carrier sprayer. I'VE HAD NO PROBLEMS WITH IT."

—R. W. Winkler,
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Robusta #5 (New Canadian Root Stock) East Malling I, II, VII, and IX Malling Merton 104, 106, 109, and 111.

| Size | 10-29 | 30 & up |
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| 3/4"-1" | 3.25 | 3.00 |
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| 1/2"-5/8" | 2.25 | 2.00 |

EM IX & MM 104 add 10c each

Write for variety list and full information

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with new GREENZ 26 to overcome yellowing iron chlorosis. Readily mixed with water and applied as a soil drench to surface-rooted ornamentals or sprayed on deeper-rooted shrubs and trees, powdered GREENZ 26 restores vitality through increased chlorophyll production.

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STRAWBERRIES

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Best commercial and home varieties. Most are virus-free—ALL certified and guaranteed! New 1950 Berry Book gives full description, valuable growing tips—also covers Blueberries, Raspberries, Grapes, Asparagus, Fruit Trees, Ornamentals. It's Free—write today!

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Hardy, Northern-grown 1-year old trees, backed by more than 100 years of Leuthardt family experience. Guaranteed free from insect pests and plant disease.

Send for Wholesale Prices

Please state your needs, soil conditions and varieties desired. Mailing No. II, IV, VII and IX understock available.

ALL TREES GRAFTED

HENRY LEUTHARDT

Dept. F, Port Chester, New York

ONE ACRE TO SEVENTY

(Continued from page 11)

they helped to bridge the changeover from hydraulic to the present type complete air sprayer.

The completely automatic Speed Sprayer was introduced in the period from 1937 to 1945 during the acute labor shortage of World War II—first into the citrus groves of Florida, then into the apple and peach orchards of the East and Central states, and by the mid-1940's, into the orchards and groves of California and the Pacific Northwest. This development was the most revolutionary in spraying methods and equipment since the introduction of power sprayers.

The Speed Sprayer was unique in that it used a large volume of medium velocity air to carry the finely atomized spray liquid into and through the trees. The spray pattern was quickly adjustable to size and shape of trees and adequate to completely spray one side of each of two rows of trees as the sprayer was hauled between the rows at speeds to 3 mph.

While the Speed Sprayer was being developed and refined, research workers at federal and state experiment stations and in laboratories of spray chemical manufacturers were mixing and testing spray solutions in more concentrated forms than the regular "dilute" solutions used up to that time.

Sprayer manufacturers worked closely with all researchers to design and adapt sprayers to the most practical and economical application of these concentrated solutions.

Attention was then focused on the design of the air and liquid discharge sections of large volume air sprayers for greatest efficiency and economy.

After several seasons of field use with concentrations of from 2x to 10x regular dilute-strength material, the concentrations generally recommended by research and extension departments were 3x to 4x the original dilute strength. Both theory and commercial practice showed that at these concentrations, complete coverage and practical rate of travel could be combined. At higher concentrations, it was usually necessary to reduce the rate of travel to a point where maximum acreage could not be sprayed in a day.

Use of these air sprayers with air volume in excess of 50,000 cfm has made it possible for one tractor-sprayer operator to protect from 60 to 70 acres of mature apple orchard in a 10-hour day with spray material hauled to the sprayer by a supply unit, usually motor-truck mounted.

The change from hydraulic to modern air spraying with concentrate

materials represents the greatest saving in orchard costs of any change in orchard practices during the history of the fruit industry.

The transition of large air volume sprayers has also brought several other important advantages to the commercial grower. He now is able to cover his entire acreage within the short period when insects and diseases are most effectively controlled. One large air volume sprayer usually replaces two to three hydraulic sprayers, which in turn reduces the number of tractors required and the number of year-around employees.

The present trend is toward air sprayers of still greater air volume, which in turn allows more rapid spraying and further reduces the labor cost.

THE END.

UNITY of PURPOSE

(Continued from page 9)

friendships, service, and satisfaction.

Recently we have had what has been fanned into the notion that we have discord in the apple industry, especially between regions and between operations of different sizes. I do not see it this way. I see many different roads leading to the same goal, and I see different groups moving along these roads in the same direction. If there is some pushing and shoving in the process, it indicates virility and a desire to get somewhere. It need not always be thought of in destructive terms.

Our job, as I see it, is to emphasize our similarities rather than our differences.

We are in a fiercely competitive field where Mrs. Housewife can choose from 102 fresh fruits and vegetables offered on the New York market alone. We must always remember that the consumer controls our future. All roads lead to market. When we prune, spray, or harvest, every move is made not just for the pleasure but for the purpose of getting our product into the hands of a satisfied consumer.

□ □ □

We have a wonderful product in the apple, long taken too much for granted. We have too long exploited eye appeal alone, important as it is. Now it is time to move with imagination and energy into other fields.

For example, in our horticultural laboratories at Michigan State University we have been working for a dozen years trying to find out the health-promoting qualities in fruits and vegetables, including the apple.

We are impressed by medical research workers like Dr. Alexander Berglas, of Zurich, Switzerland, who has observed the low incidence of disease, including cancer, among peo-

ples whose diet is predominantly vegetable, includes an abundance of raw food, is low in salt, free of stimulants, prominent in fruits, restricted in total quantity, and includes a yearly period of fasting.

We have endeavored, with some success, with funds from National Apple Institute and the support of Sloan-Kettering Institute for Cancer Research, to identify a tumor inhibitor which is present in the apple.

More recently, in our laboratories, in co-operation with our University Health Service, we have been conducting an apple-feeding experiment involving between 800 and 900 students. We are now entering the third year. The preliminary results indicate reductions in skin disorders, arthritis and supportive disorders, upper respiratory infections, and tension-producing phenomena especially. Maybe the apple is Nature's tranquilizer!

We have developed, in our laboratories, a frozen raw apple product. We core and slice the fruit, inactivate the enzymes, pulp the fruit, and freeze it. Thawed, or partially thawed, it may be eaten with a spoon. The characteristics of each variety can be easily identified. Public relations experts to whom samples were served were astounded when told that they had, in a few moments, "guzzled down" 2.7 apples each.

We find that some people who develop indigestion from raw apples can eat this product freely. Also, there are a number of people 65 and over to whom this product is especially suited.

□ □ □

But all of this will be of no avail if we do not move with energy and united purpose. You will recall the account in the Old Testament about the rebuilding of the walls of Jerusalem. After many failures, the walls were finally rebuilt, and it was done, as Jeremiah tells us, because "the people had a mind to work." Here is the secret—"the people had a mind to work." Economic law is important, organization is important, government is important, but none can compare with the spirit and the determination of men.

THE END.

NEW YORK GROWERS DEMAND ACTION

The agricultural industry is testing Governor Nelson Rockefeller of New York on his reputed political tendencies to the left.

New York farmers say they will be at the mercy of the Teamsters Union if they do not get certain enactments from the state legislature with the support of the governor.

The associated farm organizations of the state propose that Rockefeller support two legislative measures. One bill would allow farmers to get injunctions against drives to put them into the union. The other would permit any producer of a perishable crop to get an injunction against a strike that denied transportation to his crop.

One of these measures was vetoed in the last session of the legislature; the other died in the Senate.

MARCH, 1959

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- BUD SELECTION
- ALL ORDERS GUARANTEED
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The Greening Nursery Company, one of the leaders in bud selection, have for over 100 years given all growers the benefits of their research and improved strains which mean greater orchard profits.

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Specialists in Dwarf & Semi Dwarf apple on Mailing II, VII, IX, XIII, also Mailing Merton 194, 108, 109. All trees grown on fumigated sandy loam soil for vigor and strong roots, heeled outdoors for maximum protection.

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Yellow Delicious and Double Red Delicious
Genuine East Mailing on No. IX rootstocks.
Strong, 2-yr. trees. Reasonably priced.

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Perfect for
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**CUTS
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Does all orchard
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- Cutter extends 5-1/4 ft. to right of hitch point
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SAWDUST MAKES GOOD FERTILIZER

You can apply 15 tons of sawdust per acre to build rich top-soil rapidly, and greatly increase nitrogen level, if you use the Activo process. Cheaper, more permanent, and better soil condition than with chemical fertilizer. No compost-heap making. Apply now; anytime. Rush postcard for free bulletin, "How to Turn Waste into Gold."

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A complete line of orchard tools, equipment and chemicals.
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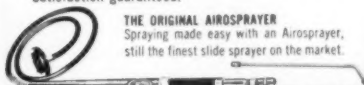
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NEW POWER AIROSPRAYER

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Save time and money with New Power Aerosprayer. Its one-man portability lets you do a quicker spraying job. Ideal for trees, gardens, and cattle. Operates from ground, truck, or any solid base. Satisfaction guaranteed.



THE ORIGINAL AIROSPRAYER
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Send me an Aerosprayer (\$8.40 east of Denver, \$8.75 west, ppd. or C. O. D. plus charges).

Send me Power Aerosprayer (\$133.95 complete with 1 1/4 h. p. Briggs & Stratton engine, F. O. B. Neodesha, Kansas).

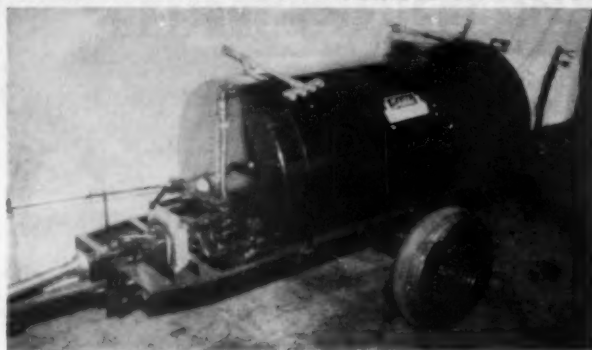
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INCLUDING THESE OUTSTANDING FEATURES

- 12 GPM—piston pump with hardened stainless steel cylinders.
- Available in 20 GPM and gas engine.
- 500 lbs. pressure.
- New—exclusive adjustable booms (pat. pend.).
- Plastic coated tank interiors.
- Gallonage gauge.

Available in 100 gallon tractor mounted or 200 gallon trailer models.

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apple trees

Imperial Double Red
Delicious
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McIntosh
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Red Rome
Red Winesap
Yellow Newtown
Yellow Delicious
Dwarfs on M. II, IV, VII, IX

pear trees

Bartlett
Flemish Beauty
Anjou
Max-Red Bartlett

apricot trees

Wenatchee Moorpark
Tilton

peach trees

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Redhaven
Halehaven
Early Elberta
Elberta
J. H. Hale
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prune trees

Early Italian (Richard's
Strain)
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Write for
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Only the New GOULD Hydraulic Boom can shake a limb every 20 seconds (or better) all day long with only one man! Why? Because it's the simplest, smoothest, easiest, fastest-to-operate tree shaker ever built. Brand new! The cleanly designed box boom contains everything . . . no exposed pipes or hoses! This is the only completely hydraulic boom shaker on the market. Principle proved by 5 years in use!

Selective shake . . . speed and hardness controlled by tractor motor. Completely hydraulic—extremely easy on the tractor. No GOULD Boom has ever caused tractor breakage. Boom lengths from 15 ft. to 25 ft. in front of tractor wheels for walnuts, almonds, filberts, pecans, prunes, olives, etc.

Featuring New
"BEAR HUG" CLAW



A single fingertip lever to raise and lower boom . . . another to clamp limb in "Bear Hug" claw . . . a third to start shake. Mounts on most wheel tractors with front power take-off. Unique—none like it anywhere. Pays for itself over and over in savings of labor, time and crops. Write for full details and prices today.

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NEW FOR YOU

Cut Fertilizing Costs

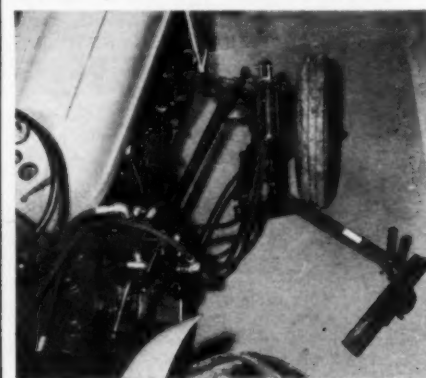
Growers in Michigan have come up with a new idea which will save money and make fertilizing much easier and quicker. The idea worked so well that



Michiana Chemical Co. has begun to make the bulk fertilizer box and supply it free of charge to grower customers. The boxes are placed on the grower's truck and then filled with 1 to 1½ tons of plant food. Once in the orchard, the grower fills his spreader from the box. There is no lifting, standing, or waiting with this method. Write Alf H. Oines, Michiana Chemical Co., P. O. Box 294, Niles, Mich., for details on the bulk fertilizer box.

The Best Tractor Hoe

Growers in the Hudson Valley report amazing success with the hydraulic hoe pictured below. The entire unit is inexpensive and can be mounted on your



tractor in five minutes or less. The hoe is extremely versatile—it can hoe between or around plants or trees. In addition, cultivator, roto-tiller, and weed-mower attachments can be mounted on the unit. Further, the tractor hoe is controlled from the driver's seat with one lever. Write Howard Green, Howard C. Green Mfg. Co., Portland, N. Y., for descriptive literature.

- Bulk Fertilizer Box
- Hydraulic Tractor Hoe

New Fruit Sprayer

Up in Sodus, Mich., a fruit and vegetable grower who has been making equipment just for fruit growing, which has included an ideal fertilizer spreader, has developed a sprayer just for you. The new machine is available in three models, a 100-gallon tractor-mounted type or 200- and 300-gallon trailer units. In all three models, the farm tractor power take-off powers a 12 gpm pump with pressures up to 500 pounds. The spray tank is plastic



coated to prevent corrosion. Michigan growers who have used the sprayer tell us it is ideal for grapes and as an auxiliary rig for the orchard. Write Harold Skibbe, Skibbe Mfg. Co., Sodus, Mich., for the facts.

Be sure to mention **AMERICAN FRUIT GROWER** when writing to manufacturers.

Grape and Berry Sprayer

Grape and berry growers in the large producing areas of Lodi and Nampa, Calif., have long sought a sprayer so designed that it would easily move between



grape and berry rows. Such a machine was developed last season, and because it has performed so well, I wanted you to know about it. Equipped with a 24-gpm pump of 500 pounds pressure range, the sprayer is available with motor or power take-off. Better still, the machine sells for less than \$1000 and includes a 300-gallon tank. Why not write Jim Rear for the details: Rear's Farm Service, 755 River Ave., Eugene, Ore.

MARCH, 1959



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MARCH, 1959



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WANTED: PEACH SCIONS AND PITS thought above average winter hardiness. DAVID LAWYER, Plains, Montana.

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APPLE GRADER-BRUSHER, SMALL; vertical spray boom; crates. PETRIDES, R. 2, Williamston, Michigan.

WANTED: USED APPLE POLISHER WITH or without grader. Write DON O. BONNELL, La Luz, New Mexico, P. O. Box 19.

American Fruit Grower

• Fruit for Health •

RICHARD T. MEISTER, Editor
H. B. TUKEY, Associate Editor

On Bargaining Associations

LITTLE by little, growers are taking things into their own hands. The time is long past due. Too long have we been letting the mills of the gods grind relentlessly and cruelly.

We have been too long advised to produce, produce, produce—it is our God-given right. But, somehow, we failed to recognize that this admonition was in the eras of underproduction and the need for food for survival. There is nothing that exhorts us to produce until we waste. Rather, thriftiness and tidiness are virtues. Somehow we must learn to control our destiny and not let our destiny control us.

And so, when eastern apple growers in distress begin to band together

to bargain collectively on the sale of apples to processors, this is good. To be sure, if they render no service but merely make it hard for processors, they will fail and pass out of existence. On the other hand, if they attempt orderly marketing and if they deal fairly with processors for a stabilized industry, well and good.

We are learning the hard way, but at least we are learning. A man can no longer live unto himself. As the Good Book says, each of us is in a sense, his brother's keeper. There is no other way than to resolve our differences, work together, and get the job done with intelligence and understanding.

Let's Get Up-To-Date

A GOOD illustration of how we handicap ourselves by our own efforts is shown by the sudden rise of interest in apple juice fortified with ascorbic acid.

It happened this way: Many years ago, it was shown that foodstuffs could be fortified with Vitamin C at a little added cost. Canadian apple juice manufacturers, who were competing with such high Vitamin C products as black currant juice, began "pepping up" their produce with Vitamin C. In fact, during World War II, when food supply was all important, the Canadian government passed a law requiring that apple juice be so fortified.

Experiments were carried on in the United States along these lines. A product was developed. Reams and reams of publicity were sent out telling of the advantages to processor, grower, and consumer alike. Exhibits were made at state and local fairs and at trade meetings of growers and processors. Technical articles were written.

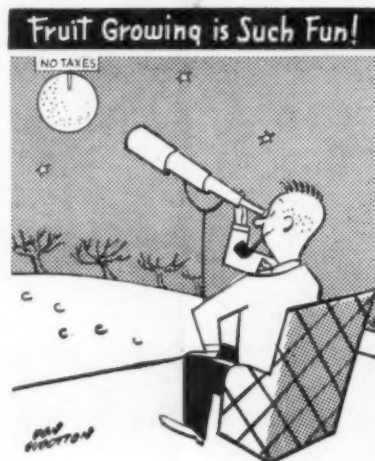
Remember, all of this was nearly 20 years ago and has been revived sporadically in the period since. But somehow the idea never caught on. It is no secret that it was disappointing to research workers in New York State to have their work disregarded.

And then came the 1958 apple crop, with cider of apples at 65 cents a hundred pounds. In desperation, the fruit juice industry came to the experiment station and asked for help in developing something that would

help them. The experiment station replied, "How about trying what we have been trying to sell you on for 20 years, namely, fortifying apple juice with ascorbic acid?" The industry replied in turn, "Just what we need. Thanks a lot. But why didn't you tell us about this before?" And so now apple juice is again moving, good apples at good prices are being used, and everyone is happier.

But, the puzzling question is, "How do we get this way?" Research is in many instances way ahead of the problem. How do you get people to use the results?

Yes, we have the answers to many problems and we can only blame ourselves that we do not listen and use them.



Fruit Talk

The average city man still will not believe it, but the latest figures show that the farm value of civilian expenditure for all foods in the United States was only 19.5 billion dollars (1957) while the total bill for marketing was 35.6 billion, and the gross national product was over 430 billion.

The Federal Food Additives Amendment of 1958 which becomes effective on March 6, 1959, shifts the burden of proof for the safety of a new additive from the government to the producer and requires the latter to secure a favorable ruling from the agency before the material is introduced for public use.

Says W. D. Sydnor of California, "I know it sounds foolish, but fresh blueberries and fresh Isabella grapes relieve my heart condition when nothing else will."

Smith and Heinze, of Beltsville, Md., report that strawberries picked at the quarter-color stage and ripened at 70° F. are approximately equal in color to those picked with more color, but are smaller and slightly poorer in texture and flavor.

Growers should be on the alert to avoid becoming "trigger happy" with power pruners, warns W. J. Lord of Massachusetts.

Illinois figures that a good commercial peach tree is worth at the maximum, \$14.40 or \$2 a year up to 5 years, 40 cents a year from 5 to 16, no gain from 16 to 20, and depreciation of 40 cents a tree per year thereafter.

A team of Japanese fruitmen has surveyed the fruit industry in the United States, and concludes that "... Chain stores and supermarkets have the stronger organization as far as the buying of fresh produce is concerned. In contrast to this, the producers have less control over the commodities which they are trying to market at a reasonable profit. However, marketing agreements and orders are helping to strengthen the position of the producers."

The Federal Crop Reporting Board lists the national apple picture by varieties as: 1—Delicious, 21%; 2—McIntosh and Winesap, 10%; 3—Rome, Jonathan, York, Stayman; and 4—Newtown, Baldwin, Golden Delicious, Gravenstein, Rhode Island Greening, Cortland, Grimes, Wealthy, Northern Spy, Ben Davis, and Black Twig.

The trend all over the country is to control the quality of fruit which reaches the market, beginning with picking according to industry standards.

According to USDA net profits as a percentage of stockholders' equity for 51 processing companies in 1957 was 9.5% after taxes, for wholesale food distributors (5) 7.6%, and for retail food chains (8) 14.2%.

—H.B.T.

Coming Next Month

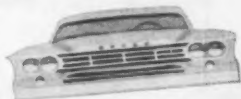
- Thinning Sprays for Apples
- How the Thews Integrated Their Orchard Operation
- National Peach Council Annual Meeting Report
- Weed Killers for Strawberries

AMERICAN FRUIT GROWER

THAT RED HOT SWEPTLINE...

DASHING STYLE!

Taut and smooth-sided, this SWEPTLINE looks as eager for action as it is! There's dashing good looks inside the cab, too, with bright two-tone fabrics, lined doors, and sports-styled instrument panels.



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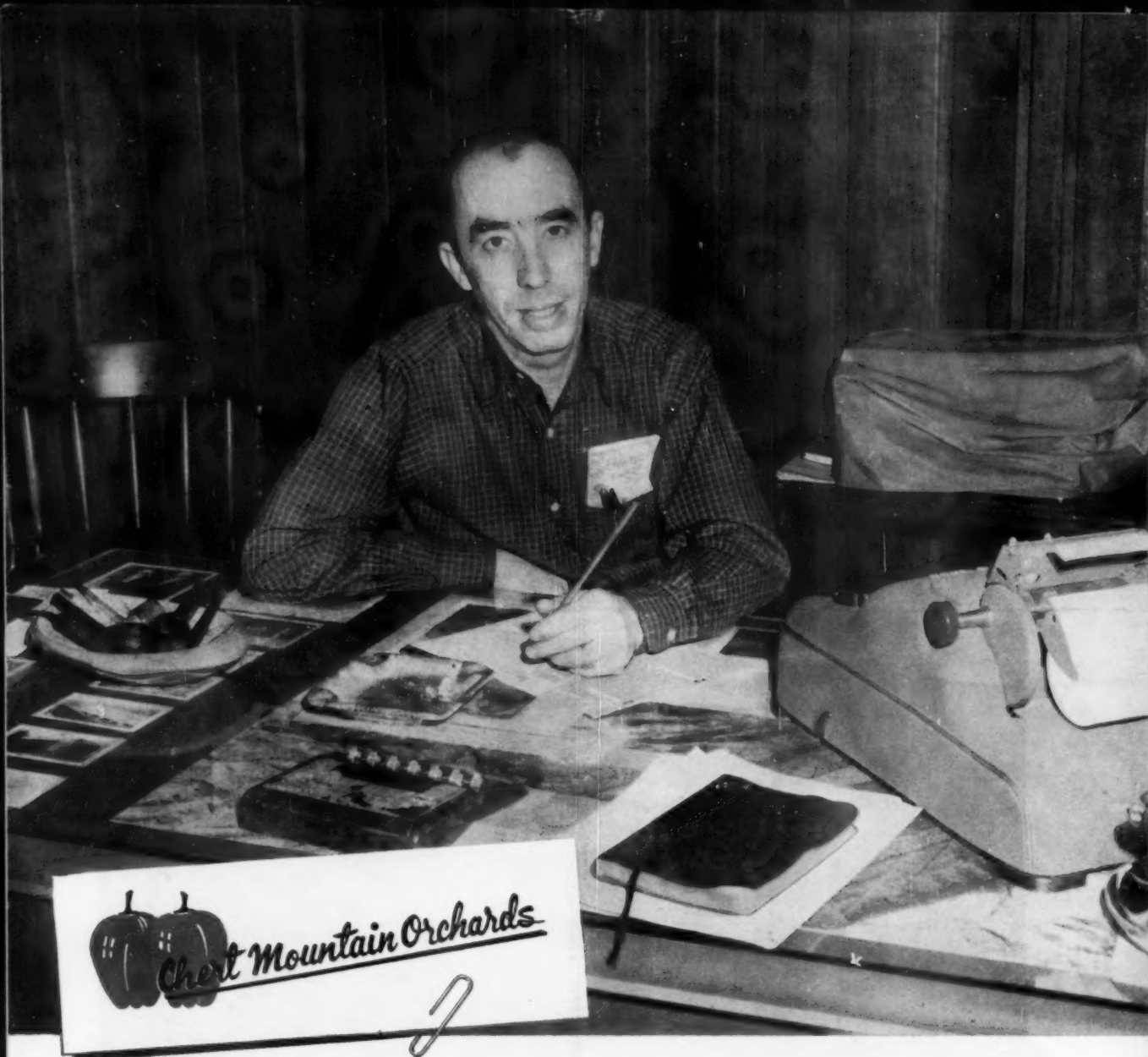
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"Captan has proved best for me"

says: Ed A. Leatherman, Jr., third generation owner of
Chert Mountain Orchards, Purgitsville, W. Va.

Mr. Leatherman continues: *"I have been using Stauffer Captan for five years. I like it for its compatibility with other materials. This is particularly advantageous in my Captan-sulfur combination program. The combination has repeatedly given me excellent scab control, and at the same time, the resulting smooth finish and good color has been very gratifying."*

More and more successful growers like Mr. Leatherman are finding that Stauffer Captan 50-W reduces scab to a minor

problem when used in a full-season schedule. Control gets easier and easier because you start with less and less over-wintering scab.

If mildew is a problem, a half dosage each of Captan and sulfur makes an ideal pre-bloom spray. Use Mag. "70" sulfur paste or a microfine dry wettable sulfur. After bloom, we caution against the use of sulfur on sensitive varieties or when the temperature is likely to exceed 90° F.

Captan can be used right up to harvest.

Use it to control major diseases on apples, peaches, cherries and strawberries.

Write for your free copy of Stauffer's apple or peach spray programs to control insects and diseases.

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